OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS)

OPERATIONAL REQUIREMENTS DOCUMENT

FOR

THE COMPOSITE HEALTH CARE SYSTEM II

Version 1.0

ACAT Level IAM

Approved: JROCM 156-00, 18 Sep 00

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TRICARE Management Activity

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Executive Summary

ES.1 Military Health System Mission.

The Military Health System (MHS) has a two-part mission. The first part of the mission is to provide, and maintain readiness to provide, medical services and support to the Armed Forces during military operations. This is accomplished through a series of activities called Force Health Protection (FHP). FHP is an integrated, prevention-oriented and surveillance-based clinical system for maintaining a healthy and fit Force.

The second part of the mission is to provide and maintain health and medical services to support members of the Armed Forces, their dependents, and others entitled to Department of Defense (DoD) medical care. This is accomplished through a series of activities known as Population Health Improvement (PHI). PHI applies the FHP concepts for maintaining a healthy and fit population, and the application of proactive health care intervention to the non-active duty beneficiary population.

FHP and PHI will reduce illness rates in the patient population by reducing the prevalence and severity of avoidable conditions through the application of preventive and maintenance services, thereby reducing the requirement for complex health care services and costly health care interventions. FHP and PHI both require accurate cumulative data on the health status of individuals and populations.

ES.2 CHCS II Support to MHS Mission.

The Composite Health Care System II (CHCS II) is the major information technology enabler for FHP and the PHI in the sustaining base. Among the many CHCS II capabilities, a key one is the military Computer-based Patient Record (CPR). CHCS II will provide the comprehensive, life-long medical record of all illnesses and injuries suffered for every Soldier, Sailor, Airman and Marine. The system will document the care and inoculations they receive and their exposure to different hazards. These records will help prevent illness and identify those that occur.

CHCS II will also establish the means to gather health data and assess the medical condition of members of the Armed Forces deployed outside the United States as part of contingency plans or combat operations. The system will also include records of all health care services rendered, medical exams, accurate records of changes in Service members' medical condition, and pre- and post-deployment medical examinations, including assessments of mental health.

These will enable MHS resource planning based on projections of actual health care needs rather than projections based on past demand. Managing and improving the health of the patient population is the means to achieve MHS mission effectiveness and cost efficiency.

ES.3 DoD Benefit.

CHCS II improves readiness, the morale of the forces and their beneficiaries, and does so in a more cost efficient manner. For the readiness mission, FHP and PHI improve the availability

and suitability of military people to perform expected missions. Improvement to readiness is achieved when the armed forces do not have preventable conditions that interfere with their ability to perform military missions.

CHCS II provides the Information Technology (IT) capability to fulfill two aspects of FHP: healthy and fit force, and casualty prevention. It is also an essential element to the successful implementation of PHI. Successful implementation of FHP/PHI can minimize the health sustainment and support requirements for military members, their dependents and others entitled to DoD medical care.

ES.4 Cost: The life-cycle for CHCS II, described in this Operational Requirement Document (ORD) includes sustainment and covers the period from Milestone 0 in January 1997 through ten years following Full Operating Capability (FOC).

Total Life Cycle Costs:
Threshold - $ 4,300,000,000
Objective - $ 3,900,000,000

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Prepared for Milestone II/III Decision

1. GENERAL DESCRIPTION OF OPERATIONAL CAPABILITY

1.1 Mission Need

The Mission Need Statement (MNS) for the Composite Health Care System II (CHCS II), approved 14 November 1996, established the need for a Computer-based Patient Record (CPR) and an incremental approach for the acquisition of this capability. Since that time the priority to deliver this capability has increased due to Presidential and Congressional interest.[1]

1.2 Mission Area

CHCS II supports the following Strategic National Level tasks from the Uniform Joint Task List (UJTL):

> **SN 4.3.3, Coordinate Defensewide Health Services.** To coordinate medical services that promote, improve, conserve, or restore the mental or physical well-being and performance of individuals or groups. This task is performed in support of all Services (and other nations as required), both in the field and in the Continental United States (CONUS). This task includes: medical, dental, veterinary, optical, and ancillary services; health-related research; medical evacuation and patient transport; medical supply and maintenance; and humanitarian assistance and civic action to other nations. (JP 4-0, 4-02, JP 3-0, 4-02.1)
>
> **SN 4.3.4, Develop and Maintain a Medical Surveillance Program.** Developing and maintaining a comprehensive surveillance program is a critical force protection element. Program elements include: mechanism to identify health threats, systems to implement preventive medicine measures, pre- and post-deployment health assessment systems, and medical surveillance systems to monitor health threats during an operation. (JP 4-02, CJCSM 3122.03, DODD 6490.1, DODI 6490.3)

1.3 The Proposed System

CHCS II will be developed and utilized in "brick and mortar" military medical facilities with peacetime missions and which constitute the sustaining base, to include Outside the

[1] Refer to Presidential Review Directive 5 and Public Law (PL) 105-85.

Continental United States (OCONUS) fixed medical treatment facilities (MTFs). This Operational Requirements Document (ORD) describes the system that will be used exclusively in those type facilities. It does not describe requirements for any functionality at Echelon I through IV facilities, except OCONUS fixed MTFs. Requirements for systems used in those facilities is described in the Theater Medical Information Program (TMIP) ORDs.

Although TMIP is responsible for the operational environment, it is not a development program. Rather, it is an integration activity, whose clinical functions are derived from CHCS II. Therefore the ability to reuse and integrate functional modules in the theater setting is a major design consideration for the development of CHCS II. The relationship between the CHCS II and TMIP Program Offices is one of cooperation in system development, with both systems needed to ensure the Military Health System's (MHS') assigned missions are accomplished. This approach minimizes the time required for system familiarization in the theater setting and allows the ability to leverage training time and funds. As part of this process the MHS is committed to maintaining an open and continuous dialogue with Services and Unified Commands to ensure the requirements of the operational forces are considered during development of medical systems.

CHCS II will initially provide support capabilities only in the ambulatory environment. However, the mature system will support Joint Vision 2020 (JV 2020) and Force Health Protection (FHP) as expressed in Joint Health Service Support Vision 2010 (JHSSV 2010). Under the principles of evolutionary acquisition, these capabilities will be extended to the inpatient environment.

CHCS II will build on the existing capabilities of existing systems (subsuming their functionality over time), and add new functions. The aggregate capabilities include:

- Assessments of medical deployability of service members
- Pre- and post-deployment medical exams to record medical conditions before deployment and changes during deployment
- Records maintenance in a central location
- Comprehensive, life-long medical record of illness and injuries, care received, immunization status, and environmental exposures
- Providing real-time objective data on individual medical readiness
- Disease management
- Demand prediction based on need
- Proactive management of the demand for health services.

The mature CHCS II will provide the capabilities listed in the table below. The capabilities listed relate to specific core business practices supporting the Military Health System (MHS) Optimization Plan (Access to Care, Provision of Health Services, and Population Health Management). The specific capabilities represented in this ORD are identified with an "X" in the right-hand column of the table. As defined in the TMIP Capstone Requirements Document (CRD), TMIP will define the functional requirements to support health care delivery and medical surveillance at Echelon I through IV facilities.

Table 1-1: CHCS II Capabilities

Capabilities of the Mature CHCS II	Legacy Capabilities [2]	CHCS II Capabilities
Access to Care		
Global Clinical Data Repository		X
Enterprise Member / Patient Index (EMPI)		X
Enrollment / Eligibility	X	X
Enterprise-wide Registration		X
Enterprise-wide Scheduling (includes Operating Room Scheduling)		X
Case Management		X
Triage And Demand Management		X
Referral Management	X	X
Evacuation Requests	X	X
Bed Availability Reporting	X	X
Provision of Health Services		
Patient Health History		X
Clinical Documentation (including encounter data, medications, physical examinations, and ancillary service data - both inpatient and outpatient)		X
Outpatient Order Entry and Management (laboratory, pharmacy, radiology)		X
Inpatient Order Entry and Management (laboratory, pharmacy, radiology)	X	X
Discharge Planning		
Operating Room Management		X
Pharmaceutical Profiling		X
Encounter Coding		X
Alerts and Reminders (including allergies and drug interactions)		X
Results Reporting (ancillary services)	X	X
Role-based Security		X
Enterprise Health Record		X
Dental Charting and Documentation		X
Optometric Documentation and Order Entry (including prescription eyewear order monitoring)		X
Clinical Decision Support		X
Patient Education		X
Home-based Monitoring		X
Transcription Services Interface		X
Centralized Health Record Repository		X
Voice Recognition		X
Telemedicine		X
Population Health Management		
Population Utilization Management and Quality Assurance/Safety		X
Patient Self Assessment Data Entry		X
Health Risk Assessment		X
Immunization Tracking		X
Individual Medical Readiness Status Reporting		X
Occupational Health Monitoring	X	X
Health Surveillance Monitoring and Reporting		X
Radiation Health Monitoring and Reporting	X	X

[2] Capabilities identified in this column provided by other systems until subsumed by CHCS II.

Capabilities of the Mature CHCS II	Legacy Capabilities [2]	CHCS II Capabilities
Provider Profiling		X
Rules-based Clinical Protocols		X
Clinical Outcomes Reporting		X
Patient Satisfaction Reporting		X
Health Plan Employer Data and Information Set (HEDIS) Reporting		X
Clinical Look-back		X

1.4 Analysis Supporting the Proposed System

In preparation for Milestone I, the CHCS II Program Office performed an Analysis of Alternatives (AoA). The AoA considered three alternatives:

- Alternative A: Status Quo with Normal Incremental Upgrades. This meant continuing to operate and sustain the Legacy CHCS and numerous other stand-alone clinical information systems at the existing level of operating costs. There would be no capital investment to create system improvements.

- Alternative B: Buy New Automated Information System (AIS) based on Existing New Developments. This meant acquiring a new Commercial Off-The-Shelf (COTS) system solution. This entailed investing in significant enhancements to the system needed to support global implementation and interoperability with other existing and planned systems.

- Alternative C: Migrating Government Off-The-Shelf (GOTS) and COTS into an Enhanced System Designed for Geographic/Mission Growth. This meant acquiring and integrating selected COTS and GOTS products/components. It entailed developing the additional enhancements needed for global implementation and increased functionality to meet mission needs.

The matrix below summarizes the criteria, including a high level analysis of the Life Cycle Cost Estimate (LCCE), used to evaluate the alternatives.

Table 1-2: CHCS II Analysis of Alternatives

MHS CPR Operational Requirements Criteria	Alt A Status Quo	Alt B Buy New	Alt C Migrate
MHS Mission Requirements			
Waegemann's Levels of the Electronic Records	Level 1	Level 2	Level 5
Longitudinal Medical Record	Limited	Limited	Yes
Structured Documentation Tool	No	Yes	Yes
Force Health Protection Features	No	No	Yes
Standardization of Clinical Business Processes	Limited	Yes	Yes
Expert Decision Support System	No	Limited	Yes
Access to the Data at the MTF Level	Yes	Yes	Yes
Access to the Regional Data	No	No	Yes
Access to the Data in the Theater	No	No	Yes
Access to the Data by Other MHS Business Areas	Limited	Limited	Yes

MHS CPR Operational Requirements Criteria	Alt A Status Quo	Alt B Buy New	Alt C Migrate
Access to the Data by Military Operational Support Forces Global Command and Control System, Global Combat Support System (GCCS, GCSS)	Limited	No	Yes
Access to the Data by Other organizations' CPRs (i.e. Veterans Administration (VA))	No	No	Yes
Key MHS Performance Measures			
Ability to Collect Data for the MHS Performance Measures	Limited	Limited	Yes
Ability to Positively Impact on the MHS Performance Measures	Limited	Limited	Yes
Department of Defense (DoD) Technical Requirements			
Data Standardization	Limited	Yes	Yes
Security (Command and Control (C2) Certification, privacy/confidentiality)	Yes	Yes	Yes
Defense Information Infrastructure (DII) Common Operating Environment (COE) (Level 5)	No	Yes	Yes
Year 2000 (Y2K)	Scheduled	Yes	Yes
General Accounting Office (GAO) Criteria for Comparing and Ranking Projects			
Evaluation of the Alternatives based on the GAO's Tool for Comparing and Ranking Projects[3]	21	48	63
Cost/Benefit			
LCCE (Constant Fiscal Year (FY) 98 $ Millions)	$5,439	$8,535	$5,377[4]
Estimated Benefits (Undiscounted Then Yr $ Millions)	N/A	$6,363	$7,179
Return on Investment (Annualized)	N/A	-25.5%	1.33%

Based on these criteria, Alternative C was selected because:

- It was the only alternative that fully met the mission need,
- It was the alternative that provided the most benefits to the MHS,
- It was the least risky alternative, and
- It had the highest overall ranking using the GAO *Criteria for Comparing and Ranking Projects*.

An updated economic analysis will be submitted for review prior to the Milestone II/III decision.

1.5 Mission the System is to Accomplish

CHCS II will provide the capabilities required to meet the Presidential Directive and legislative intent described in Section 1.2. CHCS II will integrate and present clinical data and implement a single, comprehensive, longitudinal transportable health record for every patient, available for viewing whenever and wherever needed. FHP and Population Health Improvement (PHI) data needed for Executive Information and Decision Support across the operational continuum will be derived as a by-product of usual health care activities.

[3] A higher score indicates a better investment opportunity.
[4] The AoA was completed in May 1998, and these costs were valid at that time. The costs in the Executive Summary and in Section 8 are consistent with the most recent version of the CHCS II Economic Analysis prepared for Milestone I.

1.6 Operations and Support Concepts

CHCS II will make a patient's CPR available to any authorized user when and where needed. CHCS II will provide the capability to access patient and provider information, and to document care throughout the operational continuum (in conjunction with TMIP).

The CHCS II Program Management Office (PMO) will manage appropriate licenses for operating systems, applications, interface engines, and required software in the sustaining base, to include OCONUS fixed MTFs. End user devices and communications infrastructure in in these facilities will be managed by the Tri-service Infrastructure Management Program Office (TIMPO) as a component of the integrated infrastructure requirements for MHS information systems. End-user devices and communications infrastructure for TMIP applications will be managed by individual Service programs in accordance with the TMIP ORDs.

1.6.1 Operations in the Sustaining Base. FHP/PHI and the conduct of medical readiness operations require accurate, up-to-date medical information on the population served, both active duty and general patient. This cannot be accomplished without the use of electronic data capture and management systems. CHCS II will support this data capture while simultaneously ensuring that clinicians have accurate and up-to-date medical information on which to base health management decisions. CHCS II will also provide medical information to accommodate TRICARE medical information requirements.

1.6.2 Place on the Future Battlefield. The same clinical, readiness, and FHP issues that are present in the sustaining base are present in the Theater. CHCS II, as a component of TMIP, will provide this support. CHCS II provides tailored software to meet TMIP requirements specified in the TMIP ORD. Medical operations and support concepts for Echelon I through IV facilities are within the context of TMIP's operations and support concepts. As stated in the TMIP CRD, dated 25 February 1999, this capability will be deployable, will support Echelons I through IV, and will tie into both the Echelon V medical sustaining base. This includes OCONUS fixed MTFs. TMIP will use a subset of the CPR, developed in conjunction with CHCS II. It will store clinical information captured by TMIP within its Area Of Responsibility (AOR) and is totally compatible with CHCS II, its clinical data warehouses, and its CPR. CHCS II will not degrade mission essential communications.

1.6.3 Organizational Setting. CHCS II is a medical information system that will automate the collection of encounter data at the point of care. CHCS II (as a comprehensive system) will be implemented at military MTFs providing health care. It will gather, store and permit sharing of data as described in the Information Exchange Requirement (IER) matrixes. It will enable the rapid access to relevant patient information for regional and remote treatment of injuries and illnesses, worldwide, as well as support patient referrals to, and consultations with, specialists at other MTFs.

1.6.4 Information Exchange Operational Concept. CHCS II will gather and store health and encounter information. This information will be classified as Sensitive But Unclassified (SBU). Data transfer will be accomplished over Non-secure Internet Protocol Routing Network

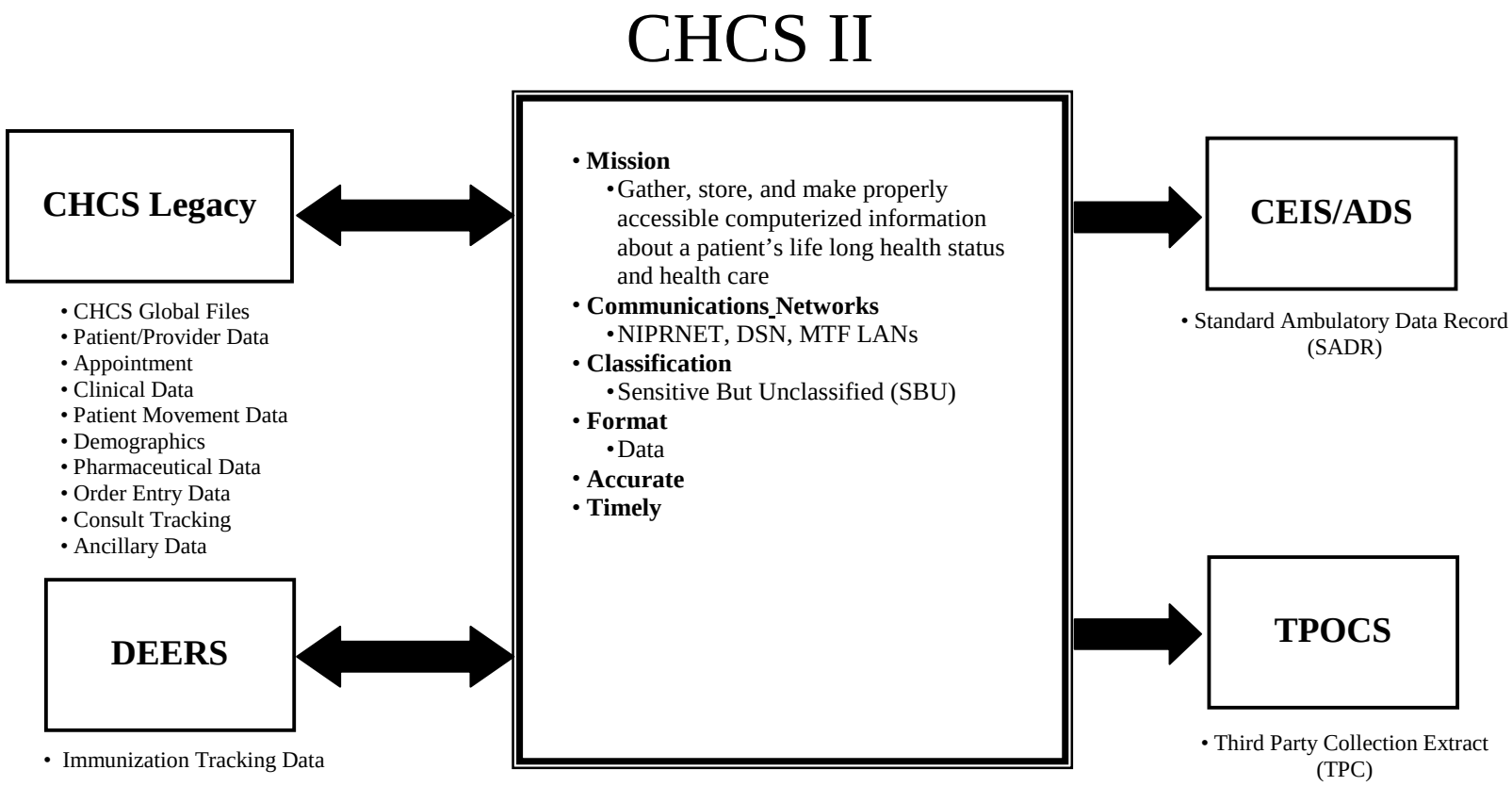
(NIPRNET), Defense Switch Network (DSN), and MTF local area networks. CHCS II will not use the SECRET Internet Protocol Network (SIPRNET) unless directed by higher authority. TIMPO will determine communication and capacity requirements. CHCS II will initially interface with Legacy CHCS, the Defense Enrollment Eligibility Reporting System (DEERS), the Corporate Executive Information System (CEIS), and the Third Party Outpatient Collection System (TPOCS).

Within an MTF, CHCS and CHCS II will interface and exchange the following types of data: global record extracts (for patients to be seen by a provider), patient and provider appointments, demographic, pharmacy, order entry, and consult tracking. CHCS II will exchange immunization tracking data with DEERS. CHCS II will provide Standard Ambulatory Data Records (SADR) to CEIS. CHCS II will also provide a Third Party Collection (TPC) extract to TPOCS. The IER matrixes provide more detailed information regarding the data exchanges between these systems.

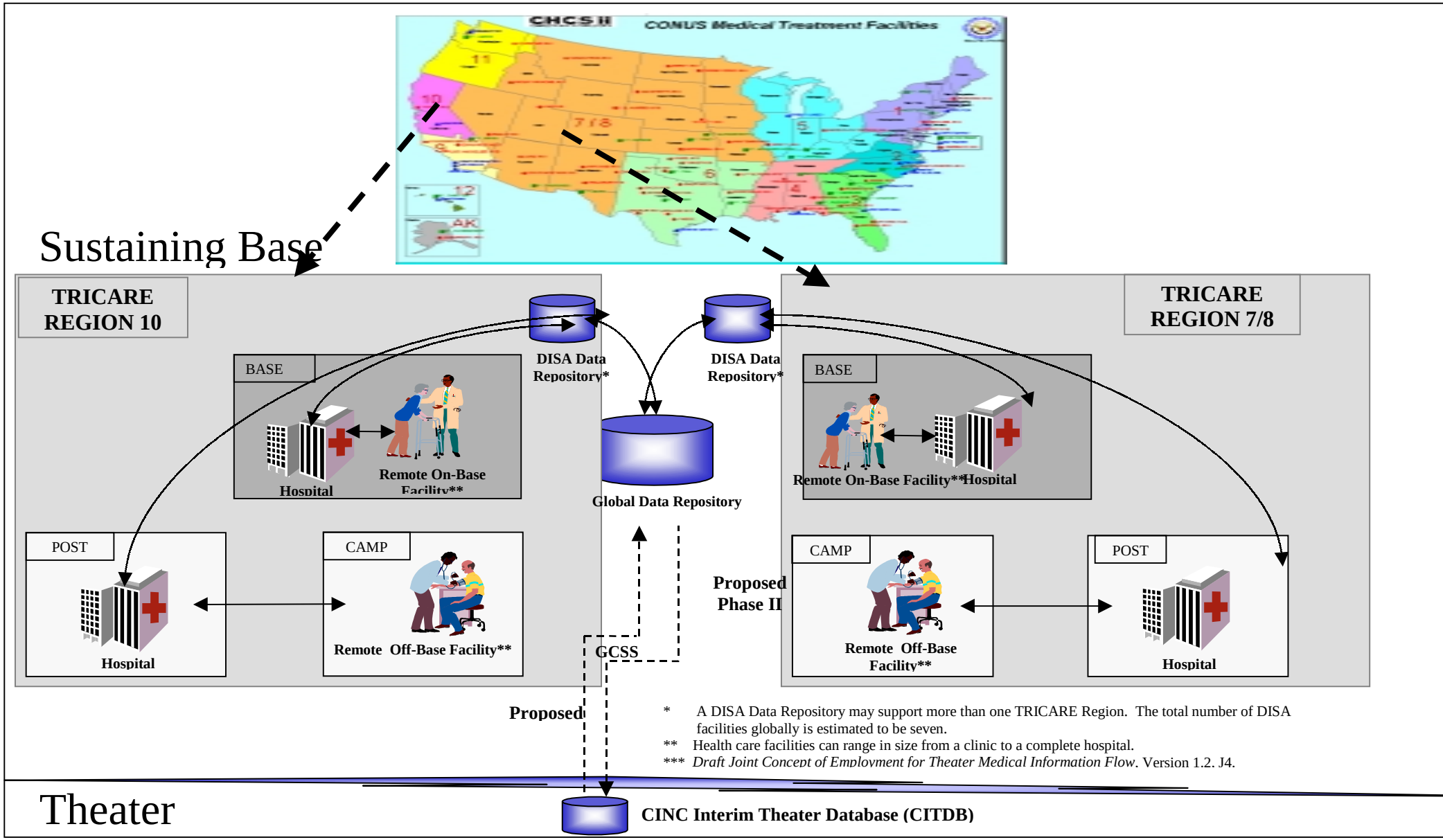
A Joint Concept of Employment for Theater Medical Information Flow has been drafted and is currently being staffed. Once approved it will describe the operational concept for information exchanges in a joint theater environment. Ultimately, all theater clinical data will be placed and stored in the Global Clinical Data Repository (GCDR). CHCS II will be fully supportive of these data exchange requirements.

The figures that follow depict the CHCS II operational concept and system interfaces. The *OV-1: CHCS II Top-Level Operational Concept View* identifies the external interfaces. The *OV-2: High-Level CHCS II Operational Environment View* presents the relationship between CHCS II host and remote sites within one TRICARE region and among TRICARE regions; the relationship between host sites and the Defense Information Systems Agency (DISA) data repositories; and the proposed relationship between the Global Data Repository and the CINC Interim Theater Database (CITDB). Finally, the *SV-1: CHCS II Top-Level Systems Interface Description* identifies legacy and current interfaces.

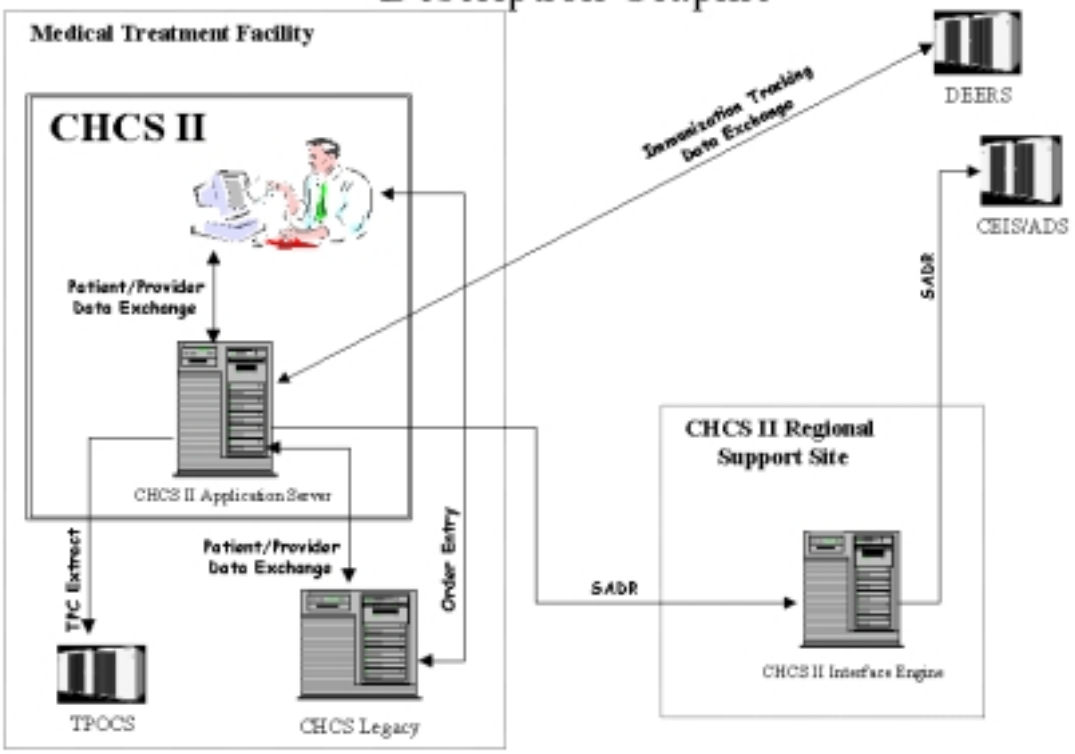
OV-1: CHCS II Top-level Operational Concept View



OV-2: High-Level CHCS II Operational Environment View



SV1: CHCS II Top-level System Interface Description Graphic



1.7 Benefits of Evolutionary Acquisition

A comprehensive review of existing and future capabilities required to satisfy both military specific needs and the general provision of health care indicates that currently available commercial products can be tailored to meet DoD needs. The main benefit in taking an evolutionary acquisition approach is to allow the commercial market place to develop mature CPR products. By committing to the use of commercial technologies the cost and risk of developing these sophisticated systems is spread out over the entire customer base of the vendor and not just the MHS.

An incremental approach to achieve full capability is planned for CHCS II between Fiscal Year 2000 (FY00) and FY07. This permits the CHCS II program to capitalize on achievements in enhanced product capability and maturity, and to apply lessons learned from operational experience gained from preceding increments.

2 THREAT

2.1 Threat to be Countered

CHCS II, by itself, will not defeat a threat capability.

2.2 Projected Threat Environment

CHCS II will operate within fixed military facilities and through established networks. Threats include physical attacks and destruction from conventional and unconventional forces, terrorists, and weapons of mass destruction and sabotage.

Information and electronic warfare attacks against CHCS II as an AIS represent the most significant threat. A wide variety of information warfare techniques and methods may be directed against CHCS II. Hostile intelligence collection of CHCS II data from which essential elements of friendly information could be derived, in addition to jamming and other electronic warfare threat, is possible. The following Defense Intelligence Agency (DIA) validated document provides additional information on the threat and the threat environment: *Information Warfare Threats to Automated Information Systems Threat Environment Description*, NAIC-1574-0210-97, April 1997. A successful threat could result in: destruction of system resources, disclosure of SBU information, denial of service, modification of or tampering with system resources, loss of confidence in data integrity of the system, and computer fraud, waste, and abuse.

2.3 Information Security

As an information system that will contain sensitive and detailed individually identifiable health information, CHCS II will ensure that the data in the system can be recovered and restored in the event of damage or destruction to individual facilities, regardless of the source of the loss. Additionally, CHCS II will incorporate adequate safeguards against unauthorized viewing or tampering with the information it contains. All SBU data is encrypted prior to entry into and transmission over the NIPRNET. CHCS II will attain the C2 level of trust, as outlined in Department of Defense Directive (DODD) 5200.28, *Security Requirements for Automated Information Systems*. Handling of information in accordance with this directive will be augmented with current national security guidelines specific to the electronic patient record to address the unique requirements of protecting the confidential nature of individually identifiable health information. Additional protection will be afforded by the assignment of passwords and permissions based on user role and duty requirements. Security standards will be consistent with Health Insurance Portability and Accountability Act (HIPAA) guidelines at the time CHCS II is ready for worldwide use and will ensure protection of patient confidentiality. A Certification and Accreditation package will be prepared in accordance with Department of Defense Instruction (DODI) 5200.40, *DOD Information Technology Security Certification and Accreditation Process*. The Certification will be accomplished in preparation for full fielding.

3 SHORTCOMINGS OF EXISTING SYSTEMS AND COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, INTELLIGENCE, SURVEILLANCE, RECONNAISSANCE AND TARGETING (C4ISR) ARCHITECTURES

Although DoD has made significant progress in improving medical business practices and automating some of its more specialized medical information systems, significant mission deficiencies and shortcomings still exist.

3.1 Existing Systems' Functional Shortcomings. The following is a summary of the major deficiencies:

3.1.1 Lack of Support for FHP and PHI, Best Clinical Practice, and Best Business Practice.

3.1.1.1 Inadequate support of Force Health Protection/Population Health Improvement. Key indicators of FHP/PHI (e.g., immunizations, screening, limited duty restrictions and anticipated return to duty, tracking and reporting of injured/ill active duty, readiness screening, screening for early detection of disease, global disease tracking and trends, high risk counseling, etc.) cannot be assessed. Current DoD medical AISs do not contain information about care outcomes, do not allow cumulative, statistical, or graphical representation of patient data, and do not support the analysis of aggregate clinical information needed for health surveillance and MHS optimization initiatives, especially those in preventive health and wellness programs.

3.1.1.2 Inadequate Delivery or Documentation of Best Clinical Practices. Current applications do not provide automated support for basic clinical documentation functions in any setting. Essential functions remain paper-based, such as patient problems, symptoms, histories, vital signs capture, physical assessment data, progress notes, and patient summary information. Clinical decision support, clinical care protocols with charted exceptions, alerts, reminders, and links to external knowledge sources are not available.

3.1.1.3 Inadequate Transport of Patient Records. Current AISs do not adequately support the capture of, and access to information entered by healthcare providers and patients to document conditions, examination results, diagnoses, prescribed treatments, etc. Nor do current AISs support access to pertinent patient historical health data at fielded locations or other health care facilities. The inability to efficiently access medical and dental information between different health care locations causes fragmented and incomplete consultations and patient referrals, delays in health care, or repeat costs of workload and test consumables. The current paper files are inefficient (non-standard from Service to Service), incomplete (incapable of storing data-intensive files such as x-rays, electrocardiograms, etc.), fragmented (separate storage within

departments and sites), and vulnerable to loss (unable to be regenerated and must be hand-carried from one MTF to the next).

3.1.1.4 Inadequate Data Storage Capacity. The current paper-based patient record system does not have the capacity to store the complete record of healthcare for the individual patient. A complete record might include digital images, narrative notes, aural information, and other complex data types. It is also extremely difficult to find (retrieve) specific information from paper files.

3.1.1.5 CPR Basic Functions. Current military clinical AISs do not fully support the fundamental attributes of a CPR system. These attributes include the following:

- Support problem lists
- Support health status and functional levels
- Document clinical reasoning as well as clinical observation
- Provide longitudinal links to other patient records
- Support confidentiality through audit trails
- Support continuous user access
- Support simultaneous user views into the CPR
- Support local and remote access
- Support clinical decision-making with alerts, reminders
- Support provider information entry
- Support cost and quality management efforts
- Support general and specialty practice information requirements
- Provide and support clinical data dictionary
- Deliver clinical data repository technology
- Support point of care information capture and delivery
- Provide clinician-user interface, clinical presentation
- Support multimedia data storage
- Support automated history and physical, structured documentation
- Support controlled vocabularies and coding structures.

3.2 Existing Systems' Technical Shortcomings:

3.2.1 Multiple Systems: The current MHS AIS (Legacy CHCS) was designed to operate within one MTF using 1980s era functional requirements and technical architecture. Legacy CHCS provides automated support for: 1) patient administration functions (such as registration, admission, and disposition); 2) ordering and retrieving results of laboratory and radiology procedures; 3) ordering and recording prescriptions; and 4) patient appointment scheduling. Legacy CHCS, supplemented by numerous stand alone, specialized information systems, forms the major automated vehicle for supporting the patient care process.

In addition, the shortcomings of the Legacy CHCS include:

- It does not provide a capability to electronically exchange patient and clinical data between the theater of operations and the MTF. There is no infrastructure for access to fragmented clinical information.
- Because there is no lexicon of standard terms and medical concepts, longitudinal patient records are not available to medical providers.
- As a result of clinical encounter notes and clinical data being stored separately, collation of a patient's clinical information is not readily achieved.
- Because each Legacy CHCS system manages data for one MTF, the infrastructure for interoperability across MTFs does not exist.
- Due to the existence of a large number of ancillary systems that support Legacy CHCS, maintenance and sustaining costs associated with labor and materials are very high and continue to rise.[5]
- Legacy CHCS does not support reengineered workflow practices aimed at optimizing health care delivery.

3.2.2 Non-integrated Clinical AISs. Over the past 20 years, DoD and its individual Services' medical communities have developed and fielded AISs. The systems improved the accuracy, efficiency, and effectiveness in the way clinical information is sorted and processed for specific functions such as nutrition programs, dental, blood supplies, etc. Due to technology limitations, different manufacturers, with unique sets of hardware and software developed each AIS independently of the others. Software was generally written in different languages, using different database designs and platforms. While the majority of these stand-alone AISs have performed well, they were never designed to facilitate the exchange of information from one system and/or MTF to the next.

4 CAPABILITIES REQUIRED

CHCS II is intended as an enterprise system for health management that integrates patient data from different times, providers, and sites of care and displays a comprehensive view of an individual patient's health at the point of care. The November 1996 CHCS II MNS states that a comprehensive, integrated electronic medical and dental record is urgently needed and critical to satisfy readiness requirements and provide quality health care services. It was recognized then that performance metrics that emphasize and reward readiness and health improvement will allow the MHS to be accountable to the Line leadership and patients.

4.1 Operational Requirements

CHCS II shall have the operational characteristics depicted in the following table:

[5] Costs to sustain legacy capabilities must be maintained until CHCS II subsumes the functionality.

Table 4-1: CHCS II Operational Characteristics

#	Characteristics	Threshold	Objective	Criteria	Rationale
1	CHCS II shall be compliant with the DISA Defense Information Infrastructure Common Operating Environment (DII COE), Joint Technical Architecture (JTA), and Health Industry Business Communication Council (HIBC) standards.	CHCS II shall be compliant at DII COE Level 5. CHCS II components used in TMIP shall be compliant at DII COE Level 6 on a schedule to meet requirements in the TMIP Integrated Acquisition Baseline (IAPB).	CHCS II shall be compliant at DII COE Level 8. CHCS II components used in TMIP shall be compliant at DII COE Level 8 on a schedule to meet requirements in the TMIP Integrated Acquisition Baseline (IAPB).	Must be determined by DISA to be compliant.	Required to comply with JTA standards. Required to comply with GCSS standards.
2	CHCS II shall provide security management services.	Handle sensitive but unclassified, or unclassified information accredited to the C2 level standards as set forth in § 2.2 of DoD 5200.28-STD (Orange Book) and in accordance with PL 104-191 Health Insurance Portability and Accountability Act of 1996 – Protecting Electronic Health Information. System must protect against unauthorized disclosure of both personal privacy and patient health data.	Same as Threshold. Additionally, CHCS II will comply with new standards and directives within DoD for Public Key Infrastructure (PKI).	C2 level is the standard set forth in § 2.2 of DoD 5200.28-STD (Orange Book).	Must protect against unauthorized disclosure of both personal identifying information and patient health data.
3	CHCS II components used in TMIP shall be compliant with the Service infrastructure and will have data interoperability.	CHCS II components used in TMIP shall be compliant with the Service-provided GCSS computer hardware and communication infrastructure. CHCS II components will comply with MHS data standards (FAM-A and FAM-D) and will be compliant with MHS operational architecture standards.	Same as Threshold.	Determined by individual Service GCSS authorities as being compliant with their respective standards.	Services are providing GCSS hardware and communications infrastructure for TMIP.
4	CHCS II components used in TMIP shall be capable of operating autonomously in the severely constrained environment associated with operations within the theater, including but not limited to loss of communications and Emissions Control (EMCON).	For CHCS II components used in TMIP, clinical encounter information collected through CHCS II shall be retained when there is intermittent or no electronic communication capability.	CHCS II components used in TMIP shall be compliant with the threshold. Additionally, retained data will be sent to centralized data bases when communications are available.	Demonstrate the ability to capture data in local databases at Echelons I, II, III, and in the CINC Integrated Theater Database (CITDB) when communications are not available.	CHCS II as a component of TMIP must continue to support clinical services when communications are not available.

CHCS II shall have the functional capabilities depicted in the following table:

Table 4-2: CHCS II Functional Capabilities

#	Functional Capabilities	Threshold	Objective	Criteria	Rationale
1	Health information directly impacting individual soldier medical readiness shall be available, with reporting and alerting tools.	Monitor individual patient performance measures within a TRICARE regional area; collect and report data from self-reporting tools (e.g., Health Enrollment/Evaluation Assessment Review [HEAR], pre- and post-deployment questionnaires, etc.) to MTF providers. Based on documentation entered in CHCS II, provide a standard report for enrolled individual active duty members with the following medical readiness information: date of most recent physical examination; DNA on file status; immunization status, batch, series, date, and number in series of inoculations; hearing aid requirements; most recent visual acuity; current physical profile (with start date and diagnosis); and dental readiness classification/date of last exam.	Monitor patient performance measures across the MHS; access to longitudinal measurements and tracking of advanced clinical and functional outcomes; reporting of health information to clinical providers and commanders throughout the MHS enterprise. Provide special program readiness reporting as defined by the Services, to include medical readiness factors that impact deployability. Provide roll-up unit level medical status readiness reporting when assigned and attached Unit Identification Codes (UICs) are electronically available from the Personnel community.	Providers and commanders receive the information they need to assess and plan for patient/soldier medical readiness.	To identify and promote wellness/readiness and targeted disease management programs; identify, track and analyze "return to wellness", health optimization, and functional outcomes by patient and patient population.
2	Standardized enrollment/eligibility information shall be available to health care providers and administrators in MTFs to manage the health of their enrolled patients.	Within a TRICARE region, display enrollment/eligibility status in a standard format that is derived from DEERS. Enrollment displayed will reflect the current status of an enrollee in the following categories: Alternate Care Value, Defense Medical Information System (DMIS) Identification, and Primary Care Manager (PCM) code.	Enterprise-wide enrollment/eligibility and third party insurance information and registration; enrollment automatically triggers population-based risk assessment process, care model, PCM, and case management assignment.	Providers are able to obtain standardized and accurate enrollment information to effectively manage the health of their enrolled/assigned patients.	Having current enrollment/eligibility information at the point of care enables the provider to effectively manage the health care of their enrolled/assigned patients and administrators to process claims.

#	Functional Capabilities	Threshold	Objective	Criteria	Rationale
3	Clinical information shall be available to providers in MTFs to support clinical decision-making.	Within a TRICARE region, maintain/display patient histories and provide a single, unified, problem list available to all health care providers that have access to the system.	Provide access to all clinically relevant electronic information pertaining to a patient throughout the DoD enterprise and across the operational continuum. Based on the information/protocols/guidelines, guided orders, alerts and reminders, will provide feedback and prospective support for individual clinical decision making and global outcomes reporting.	Provide access to all clinical information within a comprehensive longitudinal record for each patient.	Access to all clinically relevant data supports effective clinical decision making and individual outcomes reporting.
4	Standardized self-reported patient health assessment reports shall be automated, incorporated into the CPR and available to providers in MTFs.	Provide capability for patients to answer structured health information (HEAR, pre- and post-deployment) questionnaires electronically from a workstation. Provide capability for authorized users to review all entered data within the electronic patient record.	Provide capability for patients to answer structured health information questionnaires electronically from devices in locations outside of the MTF in accordance with Service information assurance directives.	CHCS II will document standardized, self-reported patient health assessments.	Self-reported patient health data must be part of the comprehensive longitudinal medical record.
5	Providers in MTFs shall have alerts and reminders to assist in the management of the health of patients.	Provide individual alerts and reminders 99% percent of the time for interventions (screening tests, counseling, immunizations and chemoprophylaxis) that might be indicated based on pre-established clinical parameters.	Provide individual and aggregate alerts and reminders for interventions (screening tests, counseling, immunizations and chemoprophylaxis) that might be indicated based on pre-established clinical parameters by PCM, unit, MTF, or other organizational levels.	Enable authoring of system rules that remind users of important clinical interventions based on clinical and demographic data within the patient's medical record.	Reminders and alerts provide for interactive feedback and prospective support for clinical decision making and individual outcomes reporting.
6	The CPR shall be a standardized tool available to facilitate use of best population-based and clinical practices. Clinical practice guidelines, clinical pathways, and referral guidelines will be available in a standardized fashion in MTFs.	Ability to access and display DoD and national clinical and health plan guidelines.	Clinical interventions (orders) are generated as a by-product of cross continuum protocols/practice guidelines; allow for interactive feedback and prospective support for clinical decision making and tracking throughout the episode of illness or wellness.	Access to enterprise-wide and national clinical guidelines will help facilitate the use of best population-based and clinical practices.	Clinical practice guidelines, clinical pathways, and referral guidelines enable the provision of optimal care and best clinical/functional outcomes.

#	Functional Capabilities	Threshold	Objective	Criteria	Rationale
7	CHCS II shall utilize a unique and consistent identifier from DEERS for patients and health care providers.	Use a unique and consistent identifier from DEERS for patients and health care providers in MTFs within a TRICARE region. Compliant with specified Health and Human Services regulations no later than the required implementation date.	Use a unique and consistent identifier from DEERS for patients and health care providers in all TRICARE regions and for TMIP. Compliant with specified Health and Human Services regulations no later than the required implementation date.	Each patient will be identified via an Enterprise Member/Patient Index (EMPI).	Provide a unique and consistent identification of patients and users across the MHS.
8	The system shall support the exchange of clinical and demographic data via an electronic device that stores information about the person that carries it.	On schedule to meet requirements in the TMIP IAPB, able to store and receive data from an Electronic Information Carrier (EIC). The aforementioned electronic storage device shall include, but is not limited to, the DoD Common Access Card. Minimum data set to be specified in the TMIP ORD.	Same as Threshold.	EIC must be able to be used independent of network system.	Provide clinical/demographic information to the user whenever, and wherever needed.
9	CHCS II shall provide access to the patient health record. CHCS II shall have capability to produce hard-copy medical records suitable to provide to members leaving government service.	Provide access to medical documentation and pre-positioned and newly created Legacy CHCS laboratory, radiology results and pharmacy data pertaining to a patient at active sites within a TRICARE region.	Provide access to all clinically relevant data pertaining to a patient throughout the DoD enterprise.	Access to self-reported and previously documented historical patient data.	Both self-reported and previously documented historical data are contained in a comprehensive patient history.
10	CHCS II shall provide electronic automated alerts and reminders of potentially harmful conditions.	Provide alerts 99% of the time when data, or data combinations, indicate that potentially harmful conditions may exist for a patient (specifically, critical laboratory results, drug and drug-allergy interactions).	Same as Threshold.	Guided orders, alerts and reminders are provided to clinical users from any site within the MHS.	Guided orders, alerts and reminders provide interactive feedback and prospective support for clinical decision making and individual outcomes reporting.
11	CHCS II shall support clinical documentation, including comprehensive clinical preventive services.	Provide the capability to document the following patient encounter information: screening, vital signs, history, physical exam, assessment, and care plan.	Provide capability to document patient medical information through multiple human-machine interfaces and in a format customized to the provider's specialty.	Management of communication between service providers in support of health care delivery.	Documentation of access to, provision of and outcomes of care as guided by clinical guidelines; allowing interdisciplinary objectives of care and monitoring attainment.

#	Functional Capabilities	Threshold	Objective	Criteria	Rationale
12	CHCS II shall support on-line laboratory, radiology, and pharmacy order entry individually or as order set components.	Provide the capability for authorized providers to enter laboratory, radiology, and pharmacy orders individually or as order set components within a local CHCS II host site.	Provide the capability for authorized providers to enter laboratory, radiology, and pharmacy orders individually or as order set components.	Permit authorized providers to order laboratory, radiology and pharmacy interventions as individual orders or as a set of orders based on clinical rationale.	Clinical interventions (orders) are generated as a by-product of cross continuum protocols/practice guidelines.
13	CHCS II shall support order entry for consults and evacuation requests.	Provide the capability for authorized providers to enter consult requests individually or as order set components within a local CHCS II host site.	Provide the capability for authorized providers to enter consult requests and evacuation requests individually or as order set components.	Permit authorized providers to order consult requests and evacuation requests based on clinical rationale.	The ability to order consults and evacuation requests electronically, provide for the documentation and timely intervention of these procedures.
14	CHCS II shall support monitoring of order status. Provide a tracking capability for consults which gives each provider a summary of all pending and unreviewed completed consults.	Enable authorized users to view laboratory, radiology, and pharmacy orders. Also, track consult requests from initiation through completion. Data from completed consults within the system becomes part of the patient's record, and the requestor can retrieve consult results. Provide a tracking capability for consults which gives each provider a summary of all pending and unreviewed completed consults.	Extend capabilities to include evacuation requests and prescription eyewear orders. Provide the capability to use orders, evacuation requests, and consult results for utilization review.	Tracking and access to orders and consult requests enables optimal communication between providers as to the plan of care.	Data from completed consults within the system becomes part of the patient's record, and the requestor can retrieve order and consult results.
15	CHCS II shall support encounter coding.	Support the accurate electronic capture of International Classification of Diseases (ICDs) and Current Procedural Terminology (CPT) codes.	Coding will be captured to a level of precision which fully supports Health Care Financing Administration (HCFA) regulations, insurance reimbursement, and health care management uses of coded data.	Electronic coding will be a by-product of documentation and fully supports health care management use of coded data.	Provide accurate, electronic capture of encounter coding with each patient encounter.

#	Functional Capabilities	Threshold	Objective	Criteria	Rationale
16	CHCS II shall support medical look-back analysis, quality of care analysis, and medical research.	Provide capability for ad hoc query/report against any data field(s) in the Clinical Data Repository (CDR) for the purpose of conducting medical look-back analysis.	Provide access to all clinically relevant data pertaining to a patient throughout the DoD enterprise across the operational continuum.	Provide clinical data for ad hoc queries and reports. Provide clinical data required for medical look-back analysis (e.g., Persian Gulf Syndrome type analyses), quality of care analysis, e.g. HEDIS, and medical research. Provide discipline-specific views of all previously recorded electronic orders and health data (e.g., Obstetrics and Gynecology (OB-GYN), Family Practice, etc.) and a listing of previous hospitalizations.	Must be fully compliant with MHS and DoD data standards.
17	CHCS II shall support all organizational levels of patient health care.	For the ambulatory setting, capture/display a subset of inpatient information to include laboratory and radiology results, and pharmacy discharge orders.	Provide for a CPR that supports the inpatient and ambulatory setting. In addition to Threshold capability, include operative reports, procedural reports, and discharge summaries.	Provide a CPR that supports all levels of health care.	Electronic capture of both outpatient and inpatient information into the patient longitudinal health record.
18	CHCS II shall provide interface specifications so that an individual site can develop the capability for transcription services documents (operation reports, discharge summaries, medical boards, etc.) to be electronically captured into the patient's records.	Provide documentation of interface specifications to allow the sites to capture transcribed documents into the CPR.	Automatically integrate transmitted data into the appropriate portions of the patient electronic health record.	All pertinent reports must be integrated into the patient's health record across the medical continuum.	Clinical providers require pertinent clinical data to be accessible.
19	To attain Full Operating Capability (FOC) CHCS II will retire the legacy system, CHCS I. CHCS I legacy system will not be retired when Initial Operating Capability (IOC) is achieved.	The CHCS I legacy system will be retired by FY08.	The CHCS I legacy system will be retired by FY07.	CHCS I legacy system is retired.	CHCS II is to subsume the valued functionality in CHCS I legacy system.

Portions of the CHCS II functionality have been identified as KPPs. Table 4-3 depicts the CHCS II KPPs together with their associated thresholds and objectives.

Table 4-3: CHCS II Key Performance Parameters

#	Key Performance Parameter	Threshold	Objective
1	**DII COE Compliance** CHCS II shall be compliant with the DISA Defense Information Infrastructure Common Operating Environment (DII COE), Joint Technical Architecture (JTA), and Health Industry Business Communication Council (HIBC) standards.	CHCS II shall be compliant at DII COE Level 5. CHCS II components used in TMIP shall be compliant at DII COE Level 6 on a schedule to meet requirements in the TMIP Integrated Acquisition Baseline (IAPB).	CHCS II shall be compliant at DII COE Level 8. CHCS II components used in TMIP shall be compliant at DII COE Level 8 on a schedule to meet requirements in the TMIP Integrated Acquisition Baseline (IAPB).
2	**Security** CHCS II shall provide security management services.	Handle sensitive but unclassified, or unclassified information accredited to the C2 level standards as set forth in § 2.2 of DoD 5200.28-STD (Orange Book) and in accordance with PL 104-191 Health Insurance Portability and Accountability Act of 1996 - Protecting Electronic Health Information. System must protect against unauthorized disclosure of both personal privacy and patient health data.	Same as Threshold. Additionally, CHCS II will comply with new standards and directives within DoD for Public Key Infrastructure (PKI).
3	**Interoperability and Infrastructure** CHCS II components used in TMIP shall be compliant with the Service infrastructure and will have data interoperability.	**Interoperability:** 100% of top level IERs designated as critical. **Infrastructure:** CHCS II components used in TMIP shall be compliant with the Service-provided GCSS computer hardware and communication infrastructure when components are provided for integration with TMIP Block 2 in accordance with the TMIP IAPB.	**Interoperability:** 100% of top level IERs. **Infrastructure:** CHCS II components used in TMIP shall be compliant with the Service-provided GCSS computer hardware and communication infrastructure when components are provided for integration with TMIP Block 3 in accordance with the TMIP IAPB.

#	Key Performance Parameter	Threshold	Objective
4	**Medical Status Reporting** Health information directly impacting individual soldier medical readiness shall be available, with reporting and alerting tools.	Monitor individual patient performance measures within a TRICARE regional area; collect and report data from self-reporting tools (e.g., Health Enrollment/Evaluation Assessment Review [HEAR], pre- and post-deployment questionnaires, etc.) to MTF providers. Based on documentation entered in CHCS II, provide a standard report for enrolled individual active duty members with the following medical readiness information: date of most recent physical examination; DNA on file status; immunization status, batch, series, date, and number in series of inoculations; hearing aid requirements; most recent visual acuity; current physical profile (with start date and diagnosis); and dental readiness classification/date of last exam.	Monitor patient performance measures across the MHS; access to longitudinal measurements and tracking of advanced clinical and functional outcomes; reporting of health information to clinical providers and commanders throughout the MHS enterprise. Provide special program readiness reporting as defined by the Services, to include medical readiness factors that impact deployability. Provide roll-up unit level medical status readiness reporting when assigned and attached Unit Identification Codes (UICs) are electronically available from the Personnel community.
5	**Clinical Documentation/ Coding** CHCS II shall support clinical documentation, including comprehensive clinical preventive services. CHCS II shall support encounter coding.	**Clinical Documentation:** Provide the capability to document the following patient encounter information: screening, vital signs, history, physical exam, assessment, and care plan. **Coding:** Support the accurate electronic capture of International Classification of Diseases (ICDs) and Current Procedural Terminology (CPT) codes.	**Clinical Documentation:** Provide capability to document patient medical information through multiple human-machine interfaces and in a format customized to the provider's specialty. **Coding:** Coding will be captured to a level of precision which fully supports Health Care Financing Administration (HCFA) regulations, insurance reimbursement, and health care management uses of coded data.

#	Key Performance Parameter	Threshold	Objective
6	**Enterprise Health Record and Unique Identifier** CHCS II shall provide access to the patient health record. CHCS II shall have capability to produce hard-copy medical records suitable to provide to members leaving government service. Providers in MTFs shall have alerts and reminders to assist in the management of the health of patients. CHCS II shall provide electronic automated alerts and reminders of potentially harmful conditions. CHCS II shall utilize a unique and consistent identifier from DEERS for patients and health care providers.	**Enterprise Health Record:** Provide access to medical documentation and pre-positioned and newly created Legacy CHCS laboratory, radiology and pharmacy data pertaining to a patient at active sites within a TRICARE region. Provide individual alerts and reminders 99% of the time for interventions (screening tests, counseling, immunizations and chemoprophylaxis) that might be indicated based on pre-established clinical parameters. Provide alerts 99% of the time when data, or data combinations, indicate that potentially harmful conditions may exist for a patient (specifically, critical laboratory results, drug and drug-allergy interactions). **Unique Identifier:** Use a unique and consistent identifier from DEERS for patients and health care providers in MTFs within a TRICARE region. Compliant with specified Health and Human Services regulations no later than the required implementation date.	**Enterprise Health Record:** Provide access to all clinically relevant data pertaining to a patient throughout the DoD enterprise. Provide individual and aggregate alerts and reminders for interventions (screening tests, counseling, immunizations and chemoprophylaxis) that might be indicated based on pre-established clinical parameters by PCM, unit, MTF, or other organizational levels. Same as Threshold. **Unique Identifier:** Use a unique and consistent identifier from DEERS for patients and health care providers in all TRICARE regions and for TMIP. Compliant with specified Health and Human Services regulations no later than the required implementation date.
7	**Patient Data Entry** Standardized self-reported patient health assessment reports shall be automated, incorporated into the CPR and available to providers in MTFs.	Provide capability for patients to answer structured health information (HEAR, pre- and post-deployment) questionnaires electronically from a workstation. Provide capability for authorized users to review all entered data within the electronic patient record.	Provide capability for patients to answer structured health information questionnaires electronically from devices in locations outside of the MTF in accordance with Service information assurance directives.

#	Key Performance Parameter	Threshold	Objective
8	**Order Entry and Monitoring** CHCS II shall support on-line laboratory, radiology, and pharmacy order entry individually or as order set components. CHCS II shall support monitoring of order status. Provide a tracking capability for consults which gives each provider a summary of all pending and unreviewed completed consults.	**Order Entry:** Provide the capability for authorized providers to enter laboratory, radiology, and pharmacy orders individually or as order set components within a local CHCS II host site. **Monitoring:** Enable authorized users to view laboratory, radiology, and pharmacy orders. Also, track consult requests from initiation through completion. Data from completed consults within the system becomes part of the patient's record, and the requestor can retrieve consult results. Provide a tracking capability for consults which gives each provider a summary of all pending and unreviewed completed consults.	**Order Entry:** Provide the capability for authorized providers to enter laboratory, radiology, and pharmacy orders individually or as order set components. **Monitoring:** Extend capabilities to include evacuation requests and prescription eyewear orders. Provide the capability to use orders, evacuation requests, and consult results for utilization review.
9	**Cost** CHCS II will deliver ORD required capabilities within approved development and deployment costs.	CHCS II will develop and deploy all of the functional capabilities within the ORD needed to achieve Initial Operating Capability (IOC) in all TRICARE regions, at a total deployment and development cost not to exceed $971 million ($ FY98).	CHCS II will develop and deploy all of the functional capabilities within the ORD needed to achieve Initial Operating Capability (IOC) in all TRICARE regions, at a total deployment and development cost not to exceed $942 million ($ FY98).

4.2 System Performance

System performance will be measured in terms of accuracy, accountability, restorability and response timeliness. The following table depicts system performance requirements, thresholds and objectives:

Table 4-4: System Performance Requirements

#	System Performance Requirement	Threshold	Objective
1	Data Accuracy: Data stored in the CHCS II database must accurately reflect the information accepted and must maintain that accuracy over time.	99%	99.9%
2	Data Completeness: Pertinent transmitted data whether sent through system interfaces or networks will only be accepted in its entirety.	99%	99.9%
3	Data Accountability: CHCS II has the ability to amend and append clinical documentation. Provide an audit trail showing the source and time of any CHCS II system changes to data. DEERS information shall be edited through the personnel system in accordance with current policy.	99%	99.9%
4	Data Recovery and Restoration: Recovery and restoration must be achievable following a hardware, application, database or power failure.	99%	99.9%
5	Data Integrity: The integrity of the data (i.e., accuracy, currency, and format) must be maintained when the data is retrieved and used by CHCS II applications and when it is accessed in a shared data environment.	99%	99.9%
6	Input Edit Checks: CHCS II input edit checks must identify to any user attempting to enter data, any non-conformance with pre-established data field boundaries and reject non-conforming entry attempts.	99%	99.9%
7	One-time data entry: Once discrete patient and clinical data passes input	99%	99.9%

#	System Performance Requirement	Threshold	Objective
	edit checks and is entered into the CHCS II database, no further entry of the same data into the database will be required.		
8	Patient Data Retrieval – *Single Result/Single Test:* In response to user command, CHCS II must return the following information: patient identification, test/data/type description; date/time of test, result value, or if not result, status of pending result within one MTF.	6 seconds – demonstrated 9 out of every 10 attempts on average	2 seconds – demonstrated 9 out of every 10 attempts on average
9	Patient Data Retrieval – *Multiple Results/Multiple Tests:* CHCS II will retrieve information for one patient across several work centers or MTFs.	25 seconds – demonstrated 9 out of every 10 attempts on average	10 seconds – demonstrated 9 out of every 10 attempts on average
10	Response to User Input – *User actions within a screen*: CHCS II will respond to user command within the following times.	1 second – demonstrated 9 out of every 10 attempts on average	Less than 1 second – demonstrated 9 out of every 10 attempts on average
11	Response to User Input – *User action to change screens:* CHCS II will respond to user command within the following times.	6 seconds – demonstrated 9 out of every 10 attempts on average	2 seconds – demonstrated 9 out of every 10 attempts on average

4.3 Information Exchange Requirements

Table 4-5: Information Exchange Requirements - CHCS II and Legacy CHCS

Event	Information Characterization	Sending Node	Receiving Node	Rationale/UJTL Number	Critical	Format	Timeliness	Frequency	Classification	Size
CHCS II shall receive medical data from Legacy CHCS										
CHCS Global Files Data Request[6]	Polling of CHCS global files	CHCS II (Enosis/ M/Adapter)	CHCS (Enosis/ M/Adapter)	SN 4.3.3 Coordinate Defensewide Health Service SN 4.3.4 Develop and Maintain a Medical Surveillance Program	Yes	Data[7]	2 to 5 seconds for single record request	Once daily/provider (25 max patients/provider)[8]	SBU	680 bytes/ record on average
CHCS Global File Data Response[6]	Polling of CHCS global files	CHCS (Enosis/ M/Adapter)	CHCS II (Enosis/ M/Adapter)	SN 4.3.3 Coordinate Defensewide Health Service SN 4.3.4 Develop and Maintain a Medical Surveillance Program	Yes	Data[7]	3 to 6 seconds for single record request	Once daily/provider (25 max patients/provider)[8]	SBU	680 bytes/ record on average
Patient/Provider Data Request	The types of data requests include: User Validation, Patient Information Retrieval and Update, Appointment Retrieval and Update, Provider Information Retrieval, Clinical Data and Demographics Display	CHCS II (Enosis[9]/ M/Adapter)	CHCS (Enosis/ M/Adapter)	SN 4.3.3 Coordinate Defensewide Health Service SN 4.3.4 Develop and Maintain a Medical Surveillance Program	Yes	Data[7]	See "Response Timeliness" requirements in ORD, Table 4-4: System Performance Requirements	Event Driven[10]	SBU	1024 bytes/ record

[6] This qualifies as a "rare event" since it will only take place during the initial population/loading of the CDR.
[7] M-Objects Format is based on the standard DataBlade message protocol.
[8] Reduced workload during initial startup.
[9] These requests are processed using the same CHCS II/Legacy CHCS interfaces along with their specified M-Objects.
[10] Upon receipt of user's request or submission, and in the order in which it is received.

Event	Information Characterization	Sending Node	Receiving Node	Rationale/UJTL Number	Critical	Format	Timeliness	Frequency	Classification	Size
Patient/Provider Data Response	The types of data requests include: User Validation, Patient Information Retrieval and Update, Appointment Retrieval and Update, Provider Information Retrieval, Clinical Data and Demographics Display	CHCS (Enosis/ M/Adapter)	CHCS II (Enosis[9]/ M/Adapter)	SN 4.3.3 Coordinate Defensewide Health Service SN 4.3.4 Develop and Maintain a Medical Surveillance Program	Yes	Data[7]	See "Response Timeliness" requirements in ORD, Table 4-4: System Performance Requirements	Event Driven[10]	SBU	2048 to 64000 bytes/ record
Order Entry Data Submission	Order Placement	CHCS II (Workstation)	CHCS (Generic Interface System)	SN 4.3.3 Coordinate Defensewide Health Service SN 4.3.4 Develop and Maintain a Medical Surveillance Program	Yes	Data Health Level (HL-7)	See "Response Timeliness" requirements in ORD, Table 4-4: System Performance Requirements	Event Driven[10]	SBU	2048 bytes/ record
Order Entry Data Acknowledgement	Order Placement	CHCS (Generic Interface System)	CHCS II (Workstation)	SN 4.3.3 Coordinate Defensewide Health Service SN 4.3.4 Develop and Maintain a Medical Surveillance Program	Yes	Data (HL-7)	See "Response Timeliness" requirements in ORD, Table 4-4: System Performance Requirements	Event Driven[10]	SBU	680 bytes/ record on average

Table 4-6: Information Exchange Requirements - CHCS II and DEERS

Event	Information Characterization	Sending Node	Receiving Node	Rationale/UJTL Number	Critical	Format	Timeliness	Frequency	Classification	Size
CHCS II shall directly interface and exchange data with DEERS v 2.0 via an HL7Version 2.3 interface.										
Vaccination Data Request	CHCS II Immunization Tracking Application (CITA) HL-7 Query for Vaccination Record	CHCS II (MTF Application Server)	DEERS	SN 4.3.3 Coordinate Defensewide Health Service SN 4.3.4 Develop and Maintain a Medical Surveillance Program	Yes	Data American Standard Code for Information Interchange (ASCII) characters	2 to 15 seconds depending on the DEERS provided interface	Event Driven[10]	SBU	1024 bytes/ record
Vaccination Data Response	DEERS HL-7 Response to Vaccination Query (Multiple matches; No records found; Exact match)	DEERS	CHCS II (MTF Application Server)	SN 4.3.3 Coordinate Defensewide Health Service SN 4.3.4 Develop and Maintain a Medical Surveillance Program	Yes	Data (ASCII characters)	2 to 15 seconds depending on the DEERS provided interface	Event Driven[10]	SBU	2048 bytes/ record
Vaccination Data Submission	CHCS II Immunization Tracking Application (CITA) HL-7 Unsolicited Vaccination Record Update	CHCS II (MTF Application Server)	DEERS	SN 4.3.3 Coordinate Defensewide Health Service SN 4.3.4 Develop and Maintain a Medical Surveillance Program	Yes	Data (ASCII characters)	2 to 15 seconds depending on the DEERS provided interface	Event Driven[10]	SBU	2048 bytes/ record
Vaccination Data Acknowledgement	DEERS Acknowledgement HL-7 Response to Vaccination Record Update	DEERS	CHCS II (MTF Application Server)	SN 4.3.3 Coordinate Defensewide Health Service SN 4.3.4 Develop and Maintain a Medical Surveillance Program	Yes	Data (ASCII characters)	2 to 15 seconds depending on the DEERS provided interface	Event Driven[10]	SBU	680 bytes/ record on average

Table 4-7: Information Exchange Requirements - CHCS II and CEIS/ADS

Event	Information Characterization	Sending Node	Receiving Node	Rationale/UJTL Number	Critical	Format	Timeliness	Frequency	Classification	Size
CHCS II shall provide clinical health care management data to CEIS and ADS.										
SADR Data Submission	SADR	CHCS II (Interface Engine)	CEIS Ambulatory Data System (ADS) (Ft Detrick Data Warehouse)	SN 4.3.3 Coordinate Defensewide Health Service SN 4.3.4 Develop and Maintain a Medical Surveillance Program	Yes	Data (ASCII characters)	Network dependent[11]	Once a day (Scheduled during minimum usage hours)	SBU	353 ASCII characters per record[12] Data - Approx. 1.3 Gbits[13]

[11] There is no urgent near real time requirement for this event.
[12] Appendix I of the CHCS II Interface Control Document (ICD), 24 January 2000.
[13] Calculation is based on the following assumptions: 32 (4x8) patients/day/provider x 15,000 providers = 480,000 records/day @ 2,824 bits/record.

Table 4-8: Information Exchange Requirements – CHCS II and TPOCS

Event	Information Characterization	Sending Node	Receiving Node	Rationale/UJTL Number	Critical	Format	Timeliness	Frequency	Classification	Size
CHCS II shall provide an electronic transfer of third party billing for healthcare received at the MTFs to TPOCS.										
TPC Data Submission	TPC Batch-data extract	CHCS II (MTF Application Server)	TPOCS (Local Server)	SN 4.3.3 Coordinate Defensewide Health Service SN 4.3.4 Develop and Maintain a Medical Surveillance Program	Yes	Data (ASCII characters)	Network dependent[11]	Once a Day (Scheduled during minimum usage hours)	SBU	549 ASCII characters per record[14] Data - Approx. 2.11Gbits[15]

[14] Appendix J of the CHCS II ICD, 24 January 2000.
[15] Calculation is based on the following assumptions: 32 (4x8) patients/day/provider x 15,000 providers = 480,000 records/day @ 4,392 bits/record.

4.4 Logistics and Readiness

System Operational Availability (OA) shall be measured in terms of the percentage of time that the system's end users are able to access and use the functionality of the system application software from their individual workstations. Specifically, OA will equal end user workstation hours actually delivered by the entire system over a year divided by the total workstation hours that should have been delivered by the entire system over a year.

- Threshold: 99%
- Objective: 100%.

4.5 Other System Characteristics

4.5.1 Electronic Attack and Wartime Reserve Modes (WARM) Requirements. CHCS II will employ security measures against masquerading and electronic attacks by means of approved encryption techniques and an intrusion detection system to protect for data integrity and provide for patient privacy. CHCS II as described in this ORD has no WARM requirements. WARM requirements will be addressed in the TMIP ORD.

4.5.2 Survivability. CHCS II will not be engineered to survive conventional, initial nuclear weapons effects, and nuclear, biological or chemical (NBC) contamination. The only protections afforded to CHCS II will be that engineered into the facilities in which the system will be employed. As part of the implementation activities for CHCS II, the selected contractor will conduct engineering design and site surveys of all the CHCS II sites (including Electromagnetic Interference/Electromagnetic Pulse (EMI/EMP) considerations). Once the existing conditions are identified, necessary measures will be taken for the sites to meet the CHCS II implementation requirements. Survivability in the theater environment will be addressed in the TMIP ORD.

4.5.3 Natural Environmental Factors. CHCS II will be designed to operate in a fixed facility. It will operate in a variety of climates and may encounter a broad range of environmental threats including earthquakes, power disturbance or interruption, lightning, wind, fire, seepage or leakage, heat, cold and dust. The only protection that will be afforded to CHCS II will be that engineered into the facilities in which the system will be employed.

4.5.4 Physical and Operational Security Needs. None.

4.5.5 Expected Operational Capability. Refer to description of "Operational Availability" in Section 4.4 "Logistics and Readiness" above.

5 PROGRAM SUPPORT

The system support for CHCS II shall be implemented in accordance with established DoD 5000 series guidelines and MHS AIS procedures. The CHCS II PMO will provide the program support for the CHCS II consistent with best practices for life cycle management. Program support in a theater medical environment will be described in the TMIP ORD and the *Theater Medical Readiness Program Decision Memorandum* study.

The CHCS II unique components shall have their own set of logistics and readiness requirements in terms of single-point failure prevention, backup capabilities, maintenance schedules, repair, sustainment training and contingency plans. End user devices and communications infrastructure in the sustaining base, including OCONUS fixed MTFs, will be managed by TIMPO as a component of the integrated infrastructure requirements for MHS information systems. End-user devices and communications infrastructure for TMIP applications will be managed by individual Service programs.

The concept of logistics support for CHCS II will be based on outsourcing logistical support using typical commercial practice concepts. CHCS II will be acquired with an initial warranty that includes 24 by 7 support with a four hour response time. After the warranty period, hardware will be maintained either through lease agreements or through a centrally funded just-in-time repair contract.

Personnel will be located at each DISA megacenter. Megacenter personnel are responsible for the day-to-day operations and maintenance of the servers at the megacenter as well as the servers located at the individual host sites. Operations and maintenance at the host sites will be via remote management tools. The PMO will use economies of scale and emerging technologies to the greatest extent possible to minimize manpower requirements. The PMO will provide centrally–funded support for CHCS II.

5.1 Maintenance Planning.

A help desk will be set up on a 7 x 24 basis and maintained for hardware and software user support. Maintenance will be provided by contract support. Maintenance support for hardware systems (servers) will be acquired through commercial warranties at initial purchase. After warranty expiration, the hardware will be maintained via just-in-time repair concept through the CHCS II PMO prime sustainment vendor. A life-of-the-lease maintenance agreement will be included for leased equipment. The PMO will provide software maintenance for all COTS software requiring annual renewal fees. The hardware and software maintenance support plan will be documented in a *CHCS II Integrated Logistics Support Plan*. Maintenance planning for ships at sea and forward deployment locations will be covered in the TMIP ORD and related documents.

5.2 Support Equipment.

No special purpose support equipment should be necessary to support CHCS II equipment for operational users.

5.3 Command, Control, Communications, Computers and Intelligence (C4I)/Standardization, Interoperability, and Commonality.

CHCS II will be designed in accordance with the *Military Health System (MHS) Architecture Framework, Version 2.1, July 1998* which derives from the DoD *C4ISR Architecture Framework, Version 2.0.*

CHCS II will have a limited number of interfaces with other medical or medical-related information systems (see IER matrix for details) and will be designed to handle SBU information. System interoperability will be tested and certified by the Joint Interoperability Test Command (JITC). CHCS II will have no connection to the SIPRNET or other secure networks handling classified information. All SBU data will be encrypted prior to entry into and transmission over the NIPRNET.

CHCS II's C4ISR infrastructure impact will be the volume of data traffic that it introduces into the Wide Area Network (WAN) and base-level local area networks (LANs) linking MTFs to the WAN. CHCS II will provided its communications infrastructure requirements to TIMPO. Within the MHS, TIMPO provides the single point of contact with DISA and the individual Service communications organizations. TIMPO will perform MHS network capacity planning and obtain the LAN/WAN communications required by CHCS II. This includes negotiating "Service level agreements" defining the quality of service to be provided.

Joint interoperability in support of the operational military mission will be addressed in the TMIP Block 2 ORD and the TMIP C4I Support Plan (C4ISP). In the sustaining base and in OCONUS fixed MTFs CHCS II will operate within the MHS operational and systems architecture. TIMPO has been tasked to develop an integrated C4ISP for MHS systems operating in this environment.

CHCS II will incorporate the full range of technologies, methods, and procedures required to achieve information assurance for SBU patient medical information maintained within the system. CHCS II will undergo system-level type certification and accreditation to the C2 level in accordance with DODD 5200.28 and DODI 5200.40. Each individual site installation will be locally certified and accredited in accordance with appropriate Service policies and regulations prior to approval for operational use.

The system's regional CDR servers will be redundant with mirrored databases and will be located at geographically dispersed sites to insure system availability against accidental loss and to defend against intentional physical and logical attacks on the system. In addition, the system databases will be backed up to tape on a daily basis with the tapes removed to secure, off-site storage locations. System servers will be installed in secure computer facilities subject to physical access controls. The *CHCS II Continuity of Operations Plan* will provide additional details on system backup and restoral procedures.

Within the MTF, access to read and input patient data will be controlled via "single sign on" and "role based security access" using individual health provider identification (user names) and passwords. A provider will only be permitted access to that subset of patient information required to perform his or her assigned duties ("user role"). All data inputs and retrievals will be entered in system audit logs for traceability. All system users will be required to possess appropriate Automatic/Automated Data Processing/Processor (ADP) position clearances and authorizations in accordance with current MHS security policies. Use of Public Key Infrastructure (PKI) will not be part of the initial system release, but will be deferred to a future Pre-Planned Product Improvement (P3I) to allow for this evolving standard to stabilize.

All SBU patient data transmitted outside physically protected enclaves (i.e., MTFs or regional support centers) will be encrypted. WAN connections used for data transmission will be protected by firewalls and intrusion detection systems to identify and defend against outside attempts to access, change, disrupt, or destroy system application software and databases.

As used in the sustaining base, there is no requirement for CHCS II to interface with North Atlantic Treaty Organization (NATO) and other allied and friendly nation systems. Per the *Joint Concept of Employment for Theater Medical Information Flow*: "TMIP will not be available in the near term to allied or coalition forces. Joint Staff, CINCs, particularly United States Joint Force Command, and the Services will work together to identify future actions necessary to share health care information with our allied and coalition partners."

CHCS II is being recommended to be designated a "Joint" system.

CHCS II will be compliant with the following DoD Standards:

Table 5-1: Applicable JTA Standards[16]

JTA Service Area	Applicable JTA Standard	Additional Standards (Industry)
User Interface	Win 32APIs and Netscape Browser	
Operating System	Win 32APIs, Window Management and Graphics Device Interface, Volume Microsoft Win32 Programmers Reference Manual, 1993 or later	
Data Management	ISO/IEC 9075: 1992 Information Technology - Database Language – SQL, as modified by FIPS PUB 127-2: 1993 Database Language for Relational DBMSs. (Entry Level SQL). SQL-3 ISO 9075-3	
Document Interchange	ISO 8879: 1986, Standard Generalized Markup Language (SGML), with Amendment 1, 1988 REC-html-971218, Hypertext Markup Language (HTML), Internet Version 4.0, Reference Specification, World Wide Web Consortium (W3C), 18 December 1997	

[16] This table reflects current JTA Standards. It will be updated as needed in the future.

JTA Service Area	Applicable JTA Standard	Additional Standards (Industry)
Remote Procedure Computing	C310, DCE 1.1: Time Services Specification, X/Open CAE Specification, November 1994 C311, DCE 1.1: Authentication and Security Services, Open Group CAE Specification, August 1997 C705, DCE 1.1: Directory Services, Open Group CAE Specification, August 1997 C706, DCE 1.1: Remote Procedure Call, Open Group CAE Specification, August 1997	SQL-3 ISO 9075-3 telnet ftp
Transport Services	TCP/IP	
LAN	IEEE 802.3u-1995, Supplement to ISO/IEC 8802-3:1993, Local and Metropolitan Area Networks: Media Access Control (MAC) Parameters, Physical Layer, Medium Attachment Units, and Repeater for 100 Mbps Operation, Type 100BASE-T (Clauses 21-30).	IGOSS, NIST 500-217 Migration Path. IEEE 802.3 is mandated (ISO 8802-3). IEEE 802.3u provides 100 Mbpservice.
DoD Date Standard	The Y2K standard calls for either YYYYMMDD or windowing[17] for legacy systems. Military standard DD-MMM-YYYY	CHCS II presents data in the military standard DDMMYYYY
HCI	DoD HCI Style Guide, TAFIM Version 3.0, Volume 8, 30 April 1996 *Windows Interface Guidelines for Software Design*, 26 June 1996, Microsoft Corporation	
Security	DOD 5200.28-STD (C2 Level) The Department of Defense Trusted Computer System Evaluation Criteria, December 1985	

5.3.1 Interface Requirements with GCCS and Common Operational Picture (COP): None.

5.3.2 Energy Standardization and Efficiency Needs. CHCS II user workstations and peripherals will be located in the administrative and patient care areas of MTFs. Workstations and peripherals will use normal 110V AC commercial power which is typically available in those areas. In overseas areas, devices that are configurable to local power will be provided or adapters will be included.

[17] Windowing allows for a two-digit year by implying a "Pivot Year." Weapons systems usually use 1950 as a pivot year. In that case 50 through 99 implies that the year is 1950 through 1999 and 00 through 49 implies 2000 through 2049. Windowing is a problem when trying to use it for a date of birth.

CHCS II servers will be located in central computer facilities either within individual MTFs or at regional server sites. In order to meet operational reliability requirements, CHCS II servers must be supplied with uninterruptible, conditioned power. This power can be provided by combinations of surge and "brownout" protection, uninterruptible power supplies, emergency backup generators, etc.

Communications devices associated with the local and wide area networks connecting CHCS II workstations to the servers will use normal commercial or conditioned, uninterruptible power depending on the severity of impact of loss of device service on the overall system reliability/availability.

5.3.3 Electromagnetic Environmental Effects. The only protection that will be afforded to CHCS II will be that engineered into the facilities in which the system will be employed. As part of the implementation activities for CHCS II, the selected contractor will conduct engineering design and site surveys of all the CHCS II sites (including EMI/EMP considerations). Once the existing conditions are identified, necessary measures will be taken for the sites to meet the CHCS II implementation requirements.

Elements of the system must be able to operate effectively within and not cause interference to the electromagnetic environment of the U.S. or Allied military installation at which they are based.

5.4 Computer Resources.

Development and acquisition of computer resources are constrained by requirements for compatibility with DII COE and the DoD/MHS data standards as expressed in the KPPs. CHCS II components selected for use by TMIP will have provisions for disassociated operations when appropriate in a theater environment. While optimal utilization of the system will require real time communications, the system will be constrained by communications and bandwidth limitations. The system must therefore provide for a subset of patient data and capabilities for encounter recording while operating without communication links. This will require the use of devices that allow data to be carried by individual patients and integrated back into the patients' lifetime health record and the appropriate data repository at the earliest feasible opportunity.

5.4.1 Computer Resource Constraints. Mission Critical and Support Resources. CHCS II will use an operating system that is JTA compliant, unless waived by DISA and MHS Chief Information Officer (CIO).

5.4.2 Unique Requirements. None.

5.5 Human Systems Integration.

The CHCS II will require a basic knowledge of personal computers to operate. The supported user interface such as a graphical user interface will be logical and intuitive, and include such features as prompts and context-sensitive help. CHCS II will accommodate both novice and practiced systems users. Novices may be accommodated through the use of structured methods such as menus. Experts need to be able to bypass novice aids and have available

power options and shortcuts in systems interactions. The CHCS II will use a standardized clinical lexicon to support clinical practices and promote system use. CHCS II shall provide an interactive electronic help system. The user will be able to query the database easily and create routine reports through the use of a simple method.

5.5.1 Manpower Constraints. The system developer will provide analysis of anticipated manpower and workload aspects of the system prior to Milestone III.

5.5.2 Manpower Factors Impacting System Design. None.

5.5.3 Cognitive, Physical and Sensory Requirements. None.

5.5.4 Unique Human Performance Requirements. CHCS II has no unique human performance requirements. No new military occupational specialties will be required to use or maintain the system.

5.5.5 Training. A training plan will be developed in accordance with applicable Joint and DoD guidance. Initial training will be provided by the CHCS II Program Office. Sustainment training will be a Service responsibility. Training requirements will be consistent with planned logistics and readiness requirements described in Section 4.4. Training shall be provided to ensure users are capable of operating and utilizing CHCS II. Training programs will be structured and organized to support user needs and updated as system changes occur. Training will be consistent with the work schedules and needs of health care personnel. It will be in conjunction with ongoing MHS planned educational initiatives for reengineering.

Training courses shall be developed with an efficient standard format and implemented through formal classroom presentations, interactive multimedia format, videotape presentations, distance learning, and/or computer-based training. All training will be tailored to the level of automation expertise of the users at a given site (based on site surveys, or predetermined by trainers). Course and reference materials shall be made available to the trainees. Training considerations shall include the inherent flexibility to accommodate wide variations in skill levels among health care providers. Training related to the use of the software program will be coupled to education and onsite assistance with the integration of the new capabilities into the health care process. Coupled to the MHS reengineering effort, benefits can be maximized.

5.6 Other Logistics and Facilities Considerations. CHCS II has no unique facility and infrastructure requirements; no special handling and packaging considerations; and no unique data requirements.

5.7 Transportation and Basing. There are no unique requirements for CHCS II.

5.8 Geospatial Information and Services. No geospatial materials, images or data are needed to employ CHCS II.

5.9 Natural Environmental Support. No unique weather, oceanographic, or astrogeophysical support is needed to employ CHCS II.

6 FORCE STRUCTURE - NUMBER OF SYSTEMS REQUIRED

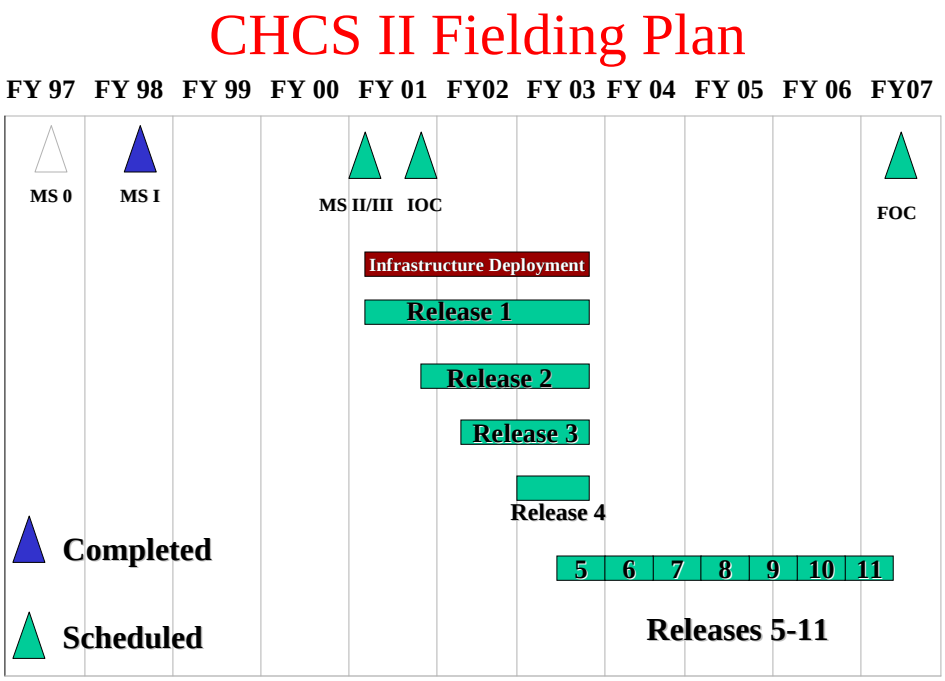
No additional manpower, nor new Military Occupational Specilaities (MOS), will be needed to operate and maintain the CHCS II system. It will replace the CHCS I (legacy) system throughout the MHS. As the Information Technology (IT) enabler for the MHS Optimization Plan, CHCS II will assist in the reallocation of existing MHS personnel assets in a way which is both more productive and supportive of the principles of managed care. It allows more participation by support members of the health care team, freeing the health provider to more efficiently and effectively care for patients.

This is in direct contrast to CHCS I, an old technology, which is both time consuming and cumbersome for the health care provider. CHCS II will bring a modern and efficient interface which allow the provider to spend more time with the patient and less with the computer.

CHCS II hardware and software will be fielded to over 100 hospitals and over 500 clinics and support potential users with up to 105,000 workstations. CHCS II implementation will use existing building space and not require construction of new facilities. Maintenance support functions will be outsourced. Support at the DISA Megacenter will be provided by DISA under contract.

7 SCHEDULE

The following graphic depicts the CHCS II schedule:



Initial Operating Capability (IOC) for CHCS II will be attained when at least one TRICARE region composed of multiple MTFs with the installed CHCS II system can perform the threshold capabilities identified in Section 4; demonstrate interoperability among MTF sites (and Legacy CHCSs); and meet threshold values for identified Key Performance parameters (KPPs). IOC for CHCS II components used in TMIP will be defined in the TMIP ORD.

Full Operational Capability (FOC) will be attained when the functional capabilities identified in Section 1.3 "The Proposed System" are achieved in MTFs in all TRICARE regions and the CHCS I legacy system is retired. FOC for CHCS II components used in TMIP will be defined in the TMIP ORD.

8 PROGRAM AFFORDABILITY

The total LCCE from inception to the end of the life cycle is provided below and stated in terms of threshold and objective cost estimates. The CHCS II LCCE includes all system costs (in accordance with the methodologies defined in the *OSD/PA&E AIS Guide for Developing Economic Analysis*, 1 March 1995) regardless of which organization is responsible for funding and providing them.

The current CHCS II LCCE includes: program and system management; concept exploration; software design, development and testing; system design, development and testing; Commercial And Non-Developmental Item (CANDI) hardware and software acquisition and maintenance;

system implementation and training; communications implementation and support; technology refreshment; product support (help desk); outsourcing; and any deltas on which to base operating cost. The CHCS II LCCE also includes cost associated with the design, development, implementation, and sustainment of all pre-planned product enhancements.

The lifecycle for CHCS II covers the period from Milestone 0 in January 1997 through ten years following FOC.

Total Life Cycle Costs:
Threshold - $ 4,300,000,000
Objective - $ 3,900,000,000

APPENDIX A

REFERENCES

Analysis of Alternatives for Composite Health Care System II, Version 2.0, approved 22 May 1998.

ASD (C3I) Memo, Implementation of DII COE Compliance, 23 May 1997.

Biological and Chemical Warfare Development and Proliferation, NHRTC 98-1000002.

C4ISR Architecture Framework, Version 2.0, 18 December 1997.

Chairman of the Joint Chiefs of Staff Instruction (CJCSI 3170.01A), Requirements Generation System, 10 August 1999.

Chairman of the Joint Chiefs of Staff Instruction (CJCSI 6212.01B), Interoperability and Supportability of National Security Systems, and Information Technology Systems, 8 May 2000.

Chairman of the Joint Chiefs of Staff Memorandum (CJCSM 3500.04A), Universal Joint Task List, 13 September 1996.

CHCS II Interface Control Document (ICD), 24 January 2000.

Chemical and Biological Threats to US Interests Overseas, NIC 99-01.

Classified Title, NHRTC 98-10002.

Classified Title, NIE 97-13/I.

Classified Title, NIE 97-13C/II.

Classified Title, NIE 99-05CX/I.

Classified Title, NIE 99-20.

Classified Title, NIE 99-05JX/II.

Configuration Management (CM) Plan for the CHCS II Project, Increment 2, Version 2.1, 15 November 1999.

Criteria for Comparing and Ranking Projects, General Accounting Office.

Defense Acquisition Desk Book, December 1999.

Defense Information Infrastructure (DII) Common Operating Environment (COE), Integration and Runtime Specification (I&RTS), Version 4.0, 25 October 1999.

DoD Automated Document Conversion (ADC) Master Plan, April 1995.

DOD Directive 4630.5, 12 November 1992, "Compatibility, Interoperability, and Integration of Command, Control, Communications, and Intelligence (C3I) Systems."

DOD Instruction 4630.8, 18 November 1992, "Procedures for Compatibility, Interoperability, and Integration of Command, Control, Communications, and Intelligence (C3I) Systems."

DOD Directive 5000.1, Change 1, 15 March 1996, "Defense Acquisition."

DOD 5000.2-R, Mandatory Procedures for MDAPs and MAIS Acquisition Programs, 11 May 1999.

DOD Directive 5200.28, Security Requirements for Automated Information Systems (AISS), 21 March 1988.

DOD Instruction 5200.40, DoD Information Technology Security Certification and Accreditation Process (DITSCAP), 30 December 1997.

DOD Instruction 5200.40, 7 October 1999, "DOD Information Technology Security Certification and Accreditation Process (DITSCAP)" DoD PKI Roadmap, February 23, 2000.

DOD Joint Technical Architecture, Version 3.1, 31 March 2000.

DSD Memo, DoD Public Key Infrastructure (PKI), 6 May 1999.

Guide for Implementing the Military Health System (MHS) Technical Architecture, Version 1.0, November 1998.

Information Warfare Threats to Automated Information Systems Threat Environment Description, NAIC-1574-0210-97, April 1997.

Institute of Medicine Report, The Computer-Based Patient Record, Committee on Improving the Patient Record, Institute of Medicine, Revised Edition, National Academy Press, Washington, D.C., 1997.

Integrated Logistics Support Plan for Composite Health Care System II.

Joint Concept of Employment for Theater Medical Information Flow, Draft Version 1.2.

Joint Health Service Support Vision 2010.

Joint Vision 2020.

JP 3-0, Doctrine for Joint Operations.

JP 4-0, Doctrine for Logistic Support of Joint Operations.

JP 4-02, Doctrine for Health Service Support in Joint Operations.

Military Health System (MHS) Architecture Framework, Version 2.1, July 1998.

Mission Need Statement for CHCS II, approved 14 November 1996.

OSD/PA&E AIS Guide for Developing Economic Analysis, 1 March 1995.

Presidential Review Directive 5, A National Obligation, Planning for Health Preparedness for and Readjustment of the Military, Veterans, and Their Families after Future Deployments, August 1998.

Proliferation of Nuclear, Biological, and Chemical Weapons and Ballistic Missiles: A Primer, DI-1569-20-99.

Public Law 105-85, National Defense Authorization Act for Fiscal Year 1998, Section 765.

The Computer-Based Patient Record: An Essential Technology for Health Care, R.S. Dick and E.B. Steen, editors.

The Foreign Biological and Chemical Threat to the United States, ICA 98-07CX.

The Global Infectious Disease Threat and Its Implications for the United States, NIE 99-17.

Theater Medical Information Program (TMIP) Capstone Requirements Document, 25 February 1999.

Theater Medical Information Program Block 1 Operational Requirements Document, 14 October 1999.

Threat Environment Projection: Chemical and Biological Warfare, 2005-30, DI-1650-43-00.

APPENDIX B

DISTRIBUTION LIST

Director, J-8, Joint Staff

APPENDIX C

LIST OF ORD SUPPORTING ANALYSIS

Analysis of Alternatives for Composite Health Care System II, Version 2.0, approved 22 May 1998.

APPENDIX D

CRD – ORD KPP/REQUIREMENTS CROSSWALK/LINKAGE

Table D-1. CRD – KPP Crosswalk/Linkage

TMIP CRD	TMIP CRD	TMIP CRD	CHCS II	CHCS II	CHCS II
Key Performance Parameter	**Threshold**	**Objective**	**Key Performance Parameter**	**Threshold**	**Objective**
DII COE and Y2K Compliance	DII COE Level 6. Y2K Compliant	DII COE Level 8. Y2K Compliant.	**DII COE Compliance** CHCS II shall be compliant with the DISA Defense Information Infrastructure Common Operating Environment (DII COE), Joint Technical Architecture (JTA), and Health Industry Business Communication Council (HIBC) standards.	CHCS II shall be compliant at DII COE Level 5. CHCS II components used in TMIP shall be compliant at DII COE Level 6 on a schedule to meet requirements in the TMIP Integrated Acquisition Baseline (IAPB).	CHCS II shall be compliant at DII COE Level 8. CHCS II components used in TMIP shall be compliant at DII COE Level 8 on a schedule to meet requirements in the TMIP Integrated Acquisition Baseline (IAPB).
Security	Meets legal, privacy, and classified standards.	Same as Threshold.	**Security** CHCS II shall provide security management services.	Handle sensitive but unclassified, or unclassified information accredited to the C2 level standards as set forth in § 2.2 of DoD 5200.28-STD (Orange Book) and in accordance with PL 104-191 Health Insurance Portability and Accountability Act of 1996 - Protecting Electronic Health Information. System must protect against unauthorized disclosure of both personal privacy and patient health data.	Same as Threshold. Additionally, CHCS II will comply with new standards and directives within DoD for Public Key Infrastructure (PKI).

TMIP CRD	TMIP CRD	TMIP CRD	CHCS II	CHCS II	CHCS II
Key Performance Parameter	**Threshold**	**Objective**	**Key Performance Parameter**	**Threshold**	**Objective**
Service Infrastructure Compatibility	Operate with Service-provided computers/communications infrastructure.	Same as Threshold.	**Interoperability and Infrastructure** CHCS II components used in TMIP shall be compliant with the Service infrastructure and will have data interoperability.	**Interoperability:** 100% of top level IERs designated as critical. **Infrastructure:** CHCS II components used in TMIP shall be compliant with the Service-provided GCSS computer hardware and communication infrastructure when components are provided for integration with TMIP Block 2 in accordance with the TMIP IAPB.	**Interoperability:** 100% of top level IERs. **Infrastructure:** CHCS II components used in TMIP shall be compliant with the Service-provided GCSS computer hardware and communication infrastructure when components are provided for integration with TMIP Block 3 in accordance with the TMIP IAPB.
			Medical Status Reporting Health information directly impacting individual soldier medical readiness shall be available, with reporting and alerting tools.	Monitor individual patient performance measures within a TRICARE regional area; collect and report data from self-reporting tools (e.g., Health Enrollment/Evaluation Assessment Review [HEAR], pre- and post-deployment questionnaires, etc.) to MTF providers. Based on documentation entered in CHCS II, provide a standard report for enrolled individual active duty members with the following medical readiness information: date of most recent physical examination; DNA on file status; immunization status, batch, series, date, and number in series of inoculations; hearing aid requirements; most recent visual acuity; current physical profile (with start date and diagnosis); and dental readiness classification/date of last exam.	Monitor patient performance measures across the MHS; access to longitudinal measurements and tracking of advanced clinical and functional outcomes; reporting of health information to clinical providers and commanders throughout the MHS enterprise. Provide special program readiness reporting as defined by the Services, to include medical readiness factors that impact deployability. Provide roll-up unit level medical status readiness reporting when assigned and attached Unit Identification Codes (UICs) are electronically available from the Personnel community.

TMIP CRD	TMIP CRD	TMIP CRD	CHCS II	CHCS II	CHCS II
Key Performance Parameter	**Threshold**	**Objective**	**Key Performance Parameter**	**Threshold**	**Objective**
			Clinical Documentation/ Coding CHCS II shall support clinical documentation, including comprehensive clinical preventive services. CHCS II shall support encounter coding.	**Clinical Documentation:** Provide the capability to document the following patient encounter information: screening, vital signs, history, physical exam, assessment, and care plan. **Coding:** Support the accurate electronic capture of International Classification of Diseases (ICDs) and Current Procedural Terminology (CPT) codes.	**Clinical Documentation:** Provide capability to document patient medical information through multiple human-machine interfaces and in a format customized to the provider's specialty. **Coding:** Coding will be captured to a level of precision which fully supports Health Care Financing Administration (HCFA) regulations, insurance reimbursement, and health care management uses of coded data.

TMIP CRD	TMIP CRD	TMIP CRD	CHCS II	CHCS II	CHCS II
Key Performance Parameter	**Threshold**	**Objective**	**Key Performance Parameter**	**Threshold**	**Objective**
			Enterprise Health Record and Unique Identifier CHCS II shall provide access to the patient health record. CHCS II shall have capability to produce hard-copy medical records suitable to provide to members leaving government service. Providers in MTFs shall have alerts and reminders to assist in the management of the health of patients. CHCS II shall provide electronic automated alerts and reminders of potentially harmful conditions. CHCS II shall utilize a unique and consistent identifier from DEERS for patients and health care providers.	**Enterprise Health Record:** Provide access to medical documentation and pre-positioned and newly created Legacy CHCS laboratory, radiology and pharmacy data pertaining to a patient at active sites within a TRICARE region. Provide individual alerts and reminders 99% of the time for interventions (screening tests, counseling, immunizations and chemoprophylaxis) that might be indicated based on pre-established clinical parameters. Provide alerts 99% of the time when data, or data combinations, indicate that potentially harmful conditions may exist for a patient (specifically, critical laboratory results, drug and drug-allergy interactions). **Unique Identifier:** Use a unique and consistent identifier from DEERS for patients and health care providers in MTFs within a TRICARE region. Compliant with specified Health and Human Services regulations no later than the required implementation date.	**Enterprise Health Record:** Provide access to all clinically relevant data pertaining to a patient throughout the DoD enterprise. Provide individual and aggregate alerts and reminders for interventions (screening tests, counseling, immunizations and chemoprophylaxis) that might be indicated based on pre-established clinical parameters by PCM, unit, MTF, or other organizational levels. Same as Threshold. **Unique Identifier:** Use a unique and consistent identifier from DEERS for patients and health care providers in all TRICARE regions and for TMIP. Compliant with specified Health and Human Services regulations no later than the required implementation date.

TMIP CRD Key Performance Parameter	TMIP CRD Threshold	TMIP CRD Objective	CHCS II Key Performance Parameter	CHCS II Threshold	CHCS II Objective
			Patient Data Entry Standardized self-reported patient health assessment reports shall be automated, incorporated into the CPR and available to providers in MTFs.	Provide capability for patients to answer structured health information (HEAR, pre- and post-deployment) questionnaires electronically from a workstation. Provide capability for authorized users to review all entered data within the electronic patient record.	Provide capability for patients to answer structured health information questionnaires electronically from devices in locations outside of the MTF in accordance with Service information assurance directives.
			Order Entry and Monitoring CHCS II shall support on-line laboratory, radiology, and pharmacy order entry individually or as order set components. CHCS II shall support monitoring of order status. Provide a tracking capability for consults which gives each provider a summary of all pending and unreviewed completed consults.	**Order Entry:** Provide the capability for authorized providers to enter laboratory, radiology, and pharmacy orders individually or as order set components within a local CHCS II host site. **Monitoring:** Enable authorized users to view laboratory, radiology, and pharmacy orders. Also, track consult requests from initiation through completion. Data from completed consults within the system becomes part of the patient's record, and the requestor can retrieve consult results. Provide a tracking capability for consults which gives each provider a summary of all pending and unreviewed completed consults.	**Order Entry:** Provide the capability for authorized providers to enter laboratory, radiology, and pharmacy orders individually or as order set components. **Monitoring:** Extend capabilities to include evacuation requests and prescription eyewear orders. Provide the capability to use orders, evacuation requests, and consult results for utilization review.
			Cost CHCS II will deliver ORD required capabilities within approved development and deployment costs.	CHCS II will develop and deploy all of the functional capabilities within the ORD needed to achieve Initial Operating Capability (IOC) in all TRICARE regions, at a total deployment and development cost not to exceed $971 million ($ FY98).	CHCS II will develop and deploy all of the functional capabilities within the ORD needed to achieve Initial Operating Capability (IOC) in all TRICARE regions, at a total deployment and development cost not to exceed $942 million ($ FY98).

TMIP CRD	TMIP CRD	TMIP CRD	CHCS II	CHCS II	CHCS II
Key Performance Parameter	**Threshold**	**Objective**	**Key Performance Parameter**	**Threshold**	**Objective**
Autonomous Operating Capability	Provide critical health care services during periods of external communications failure or unavailability	Same as Threshold.			

Table D-2. CRD – Requirements Crosswalk/Linkage

CHCS II Number	CHCS Functional Requirements	TMIP Number	Theater Functional Requirement
		TMIP.4	Health Care Delivery TMIP shall provide information management capabilities to support the protection and monitoring of the health of the population at risk and the provision of health care.
11.1	Document Health Status Surveys (HEAR)	TMIP.4.1	Assess Population Health TMIP shall provide information management capabilities to support medical surveillance and force medical protection.
11.2	Document Disease/Injury Occurrence Data		
14.6.10	Document Readiness Status		
14.7	Track Health Status		
15.3	Indicate Problem Status		
16	Reporting		
		TMIP.4.1.1	Gather Population Data TMIP shall provide information management capabilities to identify data on population(s) at risk and individual risk factors.
12	Display	TMIP.4.1.1.1	Access Denominator Data TMIP shall provide information management capabilities to access denominator and demographic data for the population at risk.
12.1	Patient Information		
12.2	Sponsor Information		
11.1	Document Health Status Surveys (HEAR)	TMIP.4.1.1.2	Access Individual Risk Factors TMIP shall provide information management capabilities to access data on individual risk factors (physical and mental).
11.2	Document Disease/Injury Occurrence Data		
14.1	Display Immunizations		
14.3	Display Readiness Information		
14.4	Manage Preventive Dental Information		
14.6.1	Document Health Status		

CHCS II Number	CHCS Functional Requirements	TMIP Number	Theater Functional Requirement
14.6.11	Document Risk Assessment		
14.6.9	Document Travel History	TMIP.4.1.1.3	Access Personnel Geographic Location History TMIP shall provide information management capabilities to access the location of all personnel assigned to the theater by geographic coordinate, date and time.
14.6.8	Document Occupational Health History	TMIP.4.1.2	Gather Exposure Data TMIP shall provide information management capabilities to document and access relevant exposure data (e.g. industrial, environmental and occupational) by geographic coordinate, date and time.
4.3	Document Note		
5	Encounter Coding		
23	Utilization Management/Quality Assurance/ Risk Management	TMIP.4.1.3	Access Medical Outcome Event Data TMIP shall provide information management capabilities to access timely health encounter data.
23.1	Review Record		
23.2	Review Criteria		
23.3	Apply Administrative Requirements		
23.4	Manage Risk		
23.5	Manage Costs		
23.6	Manage Workload		
23.7	Manage Resource Utilization		
23.8	Manage Staff Credentials		
23.9	Manage Provider Profile		
		TMIP.4.2	Support Risk Management TMIP shall provide information management capabilities for risk assessment and management.
11.1	Document Health Status Surveys (HEAR)	TMIP.4.2.1	Make Risk Assessment TMIP shall provide information management capabilities to support health risk assessment.

CHCS II Number	CHCS Functional Requirements	TMIP Number	Theater Functional Requirement
14.3	Display Readiness Information		
14.6	Document Preventive Health Information		
23.4	Manage Risk		
14.3	Display Readiness Information	TMIP.4.2.2	Develop Risk Management Options TMIP shall provide information management capabilities to support the formulation of risk management options.
20.11.1	View Clinical Practice Guidelines		
23.4	Manage Risk		
12	Patient Demographics	TMIP.4.2.3	Implement Health Risk Management Services TMIP shall provide information management capabilities to support force medical protection and performance enhancement through implementation of health risk management strategies.
14.1	Develop Plan for Clinical Preventive Services		
14.2	Edit Immunizations		
14.6.11	Document Risk Assessment		
14.7	Track Health Status		
14.9	Document Preventive Health Services		
14.10	Develop Plan for Clinical Preventive Services		
23.4	Manage Risk		
23.4	Manage Risk	TMIP.4.2.4	Evaluate Risk Management Strategy Effectiveness TMIP shall provide information management capabilities to measure the effectiveness of risk management strategies.
		TMIP.4.3	Support Delivery of Health Services TMIP shall provide information management capabilities to support delivery of health services.

CHCS II Number	CHCS Functional Requirements	TMIP Number	Theater Functional Requirement
		TMIP.4.3.1	Provide Patient Accession TMIP shall provide information management capabilities to collect patient data, schedule health service encounters, and process patients.
		TMIP.4.3.1.1	Acquire Patient TMIP shall provide information management capabilities to collect patient demographic data and confirm patient eligibility to receive health services.
12.1	Display Patient/Sponsor/Insurance/Eligibility Information	TMIP.4.3.1.1.1	Gather Patient Demographic Data TMIP shall provide information management capabilities to collect demographic, entitlement and other non-clinical information.
12.1.3	Display Insurance/Eligibility Information	TMIP.4.3.1.1.2	Verify Eligibility TMIP shall provide information management capabilities to determine patient eligibility to receive health care services according to criteria set by DoD.
		TMIP.4.3.1.2	Schedule Health Service TMIP shall provide information management capabilities to coordinate the delivery of health services.
10.1.15	Initiate Clinic Appointment Order	TMIP.4.3.1.2.1	Schedule Encounter TMIP shall provide information management capabilities to request and schedule patient visits.
18.1	Create Appointment		
18.8	Enter Scheduling Data		
18.9	Manage Enterprise-wide Appointments		
10.1.1	Initiate Pharmacy Order	TMIP.4.3.1.2.2	Schedule Resources TMIP shall provide information management capabilities to schedule the resources required by patients.
10.1.6	Initiate Laboratory Order		
10.1.7	Initiate Radiology Order		

CHCS II Number	CHCS Functional Requirements	TMIP Number	Theater Functional Requirement
18.10	Manage Staffing Schedules		
10.12.6	Patient Instructions	TMIP.4.3.1.2.3	Arrange Patient Transportation TMIP shall provide information management capabilities to schedule transportation within and between facilities.
13.1	Display Patient Overview		
		TMIP.4.3.1.3	Initiate Health Service Encounter TMIP shall provide information management capabilities to record the administrative information necessary to start a health service encounter.
4.3.3	Initiate/Create Note	TMIP.4.3.1.3.1	Initiate Encounter Documentation TMIP shall provide information management capabilities to initiate the documentation of a health service encounter.
		TMIP.4.3.1.3.2	Track Personal Effects TMIP shall provide information management capabilities to document the disposition of patient personal effects (e.g. weapons, valuables, clothing).
16	Reporting	TMIP.4.3.1.3.3	Facilitate Encounter Notification TMIP shall provide information management capabilities to support patient tracking by proper authorities (e.g. unit commander).
		TMIP.4.3.2	Assess Patient Health TMIP shall provide information management capabilities to document patient health status.
All CHCS II Requirements		TMIP.4.3.2.1	Gather Patient Health Data TMIP shall provide information management capabilities to capture and document relevant health data.

CHCS II Number	CHCS Functional Requirements	TMIP Number	Theater Functional Requirement
3	Consult Tracking	TMIP.4.3.2.2	Make Determination TMIP shall provide information management capabilities to record diagnoses.
5	Encounter Coding		
5	Encounter Coding	TMIP.4.3.2.3	Access Decision Support Tools TMIP shall provide information management capabilities to access decision support tools.
14.10.4	Display Clinical Practice Guidelines		
20	System Wide (manage data)		
20.11.4	Access External Knowledge Bases		
20.11.5	Access Links to Websites		
		TMIP.4.3.2.4	Develop Care Regimen TMIP shall provide information management capabilities to create a health services care plan.
14.10.1	Create Plan	TMIP.4.3.2.4.1	Define Goals and Objectives TMIP shall provide information management capabilities to document the goals and objectives to be accomplished by the care plan.
14.10.2	Modify Plan		
14.10.3	Display Plan		
14.10.4	Display Clinical Practice Guidelines		
20.11	Access Informational Resources	TMIP.4.3.2.4.2	Identify Health Service Options TMIP shall provide information management capabilities to collect and document care plan alternatives.
22.1	Access Practice Guidelines		
22.2	Display Practice Guidelines		
22.3	Initiate Practice Guidelines		
10.1	Initiate Order	TMIP.4.3.2.4.3	Select Health Service Options TMIP shall provide information management capabilities to document patient education and the decision making process.
22.3	Initiate Practice Guidelines		

CHCS II Number	CHCS Functional Requirements	TMIP Number	Theater Functional Requirement
		TMIP.4.3.2.4.4	Arrange Health Service Options TMIP shall provide information management capabilities to generate orders to execute the health care plan.
		TMIP.4.3.2.4.5	Determine Resource Requirements TMIP shall provide information management capabilities to identify the resources needed to perform each identified health service.
		TMIP.4.3.3	Provide Health Care Service TMIP shall provide information management capabilities to assist in the delivery of health services.
		TMIP.4.3.3.1	Prepare Patient TMIP shall provide information management capabilities to document actions taken to prepare the patient for the health care service.
		TMIP.4.3.3.2	Obtain Biological and Inorganic Specimens TMIP shall provide information management capabilities to document the collection of patient biological and inorganic specimens.
8	Medication List	TMIP.4.3.3.3	Perform Service TMIP shall provide information management capabilities to document the health services provided.
10.1.1	Initiate Pharmacy Order		
10.1.2	Initiate Pharmacy Order from Medication List		
10.1.3	Initiate Medication Order		
10.1.4	Initiate Prescription Order		
10.1.12	Initiate Dietary Order		
10.7.7	Search and Display Existing Pharmacy Orders		

CHCS II Number	CHCS Functional Requirements	TMIP Number	Theater Functional Requirement
10.8.3	Detect Pharmacy Warning Messages		
10.8.4	Detect Duplicate Orders		
10.8.5	Detect Overlapping Orders		
10.8.6	Alert Override		
10.12.8	Calculate Dosage		
14.4	Manage Preventive Dental Information		
		TMIP.4.3.4	Document Patient Disposition TMIP shall provide information management capabilities to document patient disposition.
10.1.9	Initiate Discharge Order	TMIP.4.3.4.1	Document Disposition Instructions TMIP shall provide information management capabilities to document receipt and understanding of patient disposition status and patient care instruction.
10.12.6	Patient Instructions		
		TMIP.4.3.4.2	Document Disposition of Remains TMIP shall provide information management capabilities to document disposition of remains.
5.5	Display Disposition	TMIP.4.3.4.3	Report Patient Disposition TMIP shall provide information management capabilities to report patient disposition to proper authorities (e.g. unit commanders).
16	Reporting		
		TMIP.4.4	Portable Medical Records TMIP shall support the use of standard interoperable EICs.

6.1	External Interfaces – DoD	TMIP.4.5	Health Care Delivery (HCD) Interfaces TMIP shall provide the capability to integrate and/or interface with TMIP system components and external systems in support of HCD.
		TMIP.4.5.1	HCD Internal Interfaces TMIP shall provide the capability to integrate and/or interface with TMIP system components in support of HCD.
		TMIP.4.5.2	HCD External Interfaces TMIP shall provide the capability to integrate and/or interface with external systems in support of HCD.

GLOSSARY – PART I: ACRONYMS

ADP	Automatic/Automated Data Processing/Processor
ADS	Ambulatory Data System
AIS	Automated Information System
AoA	Analysis of Alternatives
AOR	Area of Responsibility
ASCII	American Standard Code for Information Interchange
C2	Command and Control
C4I	Command, Control, Communications, Computers and Intelligence
C4ISP	Command, Control, Communications, Computers and Intelligence Support Plan
C4ISR	Command, Control, Communications, Computers, Intelligence Surveillance and Reconnaissance
CAE	Common Application Environment (X/Open)
CANDI	Commercial and Non-Developmental Item
CDR	Clinical Data Repository
CEIS	Corporate Executive Information System
CHCS	Composite Health Care System
CHCS II	Composite Health Care System II
CINC	Commander in Chief
CIO	Chief Information Officer
CITA	CHCS II Immunization Tracking Application
CITDB	CINC Interim Theater Database
CJCSM	Chairman, Joint Chiefs of Staff Memorandum
COE	Common Operating Environment
CONUS	Continental United States
COP	Common Operational Picture
COTS	Commercial Off the Shelf
CPR	Computer-based Patient Record
CPT	Current Procedural Terminology
CRD	Capstone Requirements Document
DBMS	Database Management System
DCE	Distributed Computing Environment
DEERS	Defense Enrollment Eligibility Reporting System
DIA	Defense Intelligence Agency
DII	Defense Information Infrastructure
DISA	Defense Information Systems Agency
DITSCAP	Defense Information Technology Security Certification and Accreditation Process
DMIS	Defense Medical Information System
DNA	Deoxyribonucleic Acid
DoD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DSN	Defense Switch Network

EIC	Electronic Information Carrier
EMCON	Emissions Control
EMI/EMP	Electromagnetic Interference/Electromagnetic Pulse
EMPI	Enterprise Member Patient Index
FHP	Force Health Protection
FIPS	Federal Information Processing Standard
FOC	Full Operating Capability
FY	Fiscal Year
FY00	Fiscal Year 2000
GAO	General Accounting Office
GCCS	Global Command and Control System
GCDR	Global Clinical Data Repository
GCSS	Global Combat Support System
GOTS	Government Off the Shelf
HCD	Health Care Delivery
HCFA	Health Care Financing Administration
HCI	Human Computer Interface
HEAR	Health Enrollment/Evaluation Assessment Review
HEDIS	Health Plan Employer Data and Information Set
HIBC	Health Industry Business Council
HIPAA	Health Insurance Portability and Accountability Act
HL7	Health Level Seven
HTML	Hypertext Markup Language
I&RTS	Integration and Runtime Specification
IAPB	Integrated Acquisition Program Baseline
ICD	International Classification of Diseases
ICD	Interface Control Document
IEEE	Institute of Electrical & Electronics Engineers
IER	Information Exchange Requirement
IGOSS	Industry/Government Open Systems Specification
IOC	Initial Operating Capability
ISO/IEC	International Standards Organization/International Electrotechnical Commission (ITU-T M 3000)
IT	Information Technology
JHSSV 2010	Joint Health Service Support Vision 2010
JITC	Joint Interoperability Test Command
JP	Joint Publication
JTA	Joint Technical Architecture
JV 2020	Joint Vision 2020
KPP	Key Performance Parameter
LAN	Local Area Network
LCCE	Life Cycle Cost Estimate
MAC	Media Access Control
MHS	Military Health System
MNS	Mission Need Statement
MOS	Military Occupational Specialty

MTF	Medical Treatment Facility
NAIC	Nuclear Weapon Accident & Incident Control
NATO	North Atlantic Treaty Organization
NBC	Nuclear, Biological and Chemical
NCQA	National Committee for Quality Assurance
NIPRNET	Non-secure Internet Protocol Routing Network
NIST	National Institute of Standards & Technology
OA	Operational Availability
OB-GYN	Obstetrics and Gynecology
OCONUS	Outside the Continental United States
ORD	Operational Requirements Document
OSD/PA&E	Office of Secretary of Defense/Program Assessment and Evaluation
P3I	Pre-Planned Product Improvement
PCM	Primary Care Manager
PHI	Population Health Improvement
PKI	Public Key Infrastructure
PL	Public Law
PMO	Program Management Office
SADR	Standard Ambulatory Data Record
SBU	Sensitive But Unclassified
SGML	Standard Generalized Markup Language
SIPRNET	Secret Internet Protocol Router Network
SQL	Structured Query Language
TAFIM	Technical Architecture Framework for Information Management
TCP/IP	Transmission Control Protocol/Internet Protocol
TIMPO	Tri-service Infrastructure Management Program Office
TMIP	Theater Medical Information Program
TPC	Third Party Collection
TPOCS	Third Party Outpatient Collection System
UIC	Unit Identification Code
UJTL	Uniform Joint Task List
VA	Veterans Administration
W3C	World Wide Web Consortium
WAN	Wide Area Network
WARM	Wartime Reserve Mode
Y2K	Year 2000

GLOSSARY – PART II: DEFINITIONS

Automated Information System (AIS) — Computer hardware, computer software, telecommunications, information technology, personnel, and other resources that collect, record, process, store, communicate, retrieve, and display information. An AIS can include computer software only, computer hardware only, or a combination of the above. (See DODD 8000.1)

CINC – Commander of a combatant command; commander in chief (JP 1-02).

Corporate Executive Information System (CEIS) — The CEIS is a target Tri-Service system for integrating executive information support requirements across the MHS.

Composite Health Care System (CHCS) — The Legacy CHCS is the Military Health System AIS that provides patient facility data management and communications capabilities. Specific areas supported include MTF health care (administration and care delivery), patient care process (integrates support--data collections and one-time entry at source), ad hoc reporting, patient registration, admission, disposition, and transfer, inpatient activity documentation, outpatient administrative data, appointment scheduling and coordination (clinics, providers, nurses, and patients), laboratory orders (verifies and processes), drug and lab test interaction, quality control and test reports, radiology orders (verifies and processes), radiology test result identification, medication order processing (inpatient and outpatient), medicine inventory, inpatient diet orders, patient nutritional status data, clinical dietetics administration, nursing, order-entry, eligibility verification, provider registration, and the Managed Care Program.

Continental United States (CONUS) — United States territory, including the adjacent territorial waters located within the North American continent between Canada and Mexico. Alaska and Hawaii are not part of the CONUS.

Computer-based Patient Record (CPR) — Electronic patient record that resides in a system designed to support users through availability of complete and accurate data, practitioner reminders and alerts, clinical decision support system, links to bodies of medical knowledge, and other aids. Also: The set of components that form the mechanism by which patient records are created, used, stored, and retrieved. It includes people, data, rules and procedures, processing and storage devices, and communication and support facilities.

Defense Enrollment Eligibility Reporting System (DEERS) — Automated system of verification of a person's eligibility to receive Uniformed Service benefits and privileges.

Deployment —

1. Deployment encompasses all activities from origin or home station through destination, specifically including intra-continental United States, intertheater, and intratheater movement legs, staging, and holding areas.

2. A deployment as defined for FHP/Deployment Health Surveillance is: A. Troop movement resulting from a JCS/unified command deployment order for 30 continuous days or greater to a land-based location that does not have a permanent US military treatment facility (i.e. funded by the DHP). B. Routine shipboard operations that are not anticipated to involve field operations ashore for over 30 continuous days are exempt from the requirement for pre and post deployment health assessments.

Echelons of Medical Care — The medical echelons are associated with the level of medical care provided. However, the assignment of echelons is a matter of principle, practice, and organization pattern. The scope of function of an echelon may be expanded or contracted on sound indication; one or more echelons may be bypassed on grounds of efficiency or expediency; and formal organizational structure will differ with time and among various Armed Forces. (Joint Pub 4.02)

Force Health Protection (FHP) — A unified and comprehensive strategy that aggressively promotes a healthy and fit force and provides full protection from all potential health hazards throughout the deployment process. Its major ingredients include healthy and fit force promotion, casualty and injury prevention, and casualty care and management. Includes preventive measures that influence the physical and social environment to protect people's health.

Health Plan Employer Data and Information Set (HEDIS) — HEDIS is a set of standardized performance measures designed to assess the quality of health care and services provided by managed care plans. HEDIS was developed by the National Committee for Quality Assurance (NCQA) to provide purchasers and consumers with the ability to evaluate the quality of different health plans, and to make their plan decisions based upon demonstrated value rather than simply on cost.

Infrastructure — The physical hardware used to interconnect computers and users. Infrastructure includes the transmission media, including telephone lines, cable television lines, and satellites and antennas, and also the routers, aggregators, repeaters, and other devices that control transmission paths. It may also be said to include the software used to send, receive, and manage the signals that are transmitted.

Initial Operating Capability (IOC) — The first attainment of the capability to employ effectively a weapon, item of equipment, or system of approved specific characteristics, and which is manned or operated by an adequately trained, equipped, and supported military unit or force.

Key Performance Parameters (KPPs) — A KPP is that capability or characteristic that is so significant that failure to meet the threshold can be cause for the concept or system selection to be reevaluated or the program to be reassessed. Within each functional capability, thresholds and objectives are provided. A threshold is the minimum acceptable value below which the utility of the system becomes questionable. An objective is a value beyond the threshold that could potentially have a measurable and beneficial impact on

capability or operations and support. KPPs should be expressed with both thresholds and objectives.

Longitudinal — Comprehensive over any given period of time.

Medical Treatment Facility (MTF) — Any military facility established for the purpose of furnishing medical and/or dental care to eligible individuals. An MTF is a medical installation ranging in size from a battalion aid station to a 1,000-bed hospital or hospital ship.

Military Health System (MHS) — The Military Health System incorporates all aspects of health services for the Department of Defense.

Operational Requirements Document (ORD) — A document prepared by the using command that describes pertinent quantitative and qualitative performance, operation, and support parameters, characteristics, and requirements for a specific system.

Population Health Improvement (PHI) — The balancing of awareness, education, prevention and intervention activities needed to improve the health of a given population. These activities, when matched to the capacity of a health care system, are designed to increase the effectiveness in changing behaviors with the realm of physical, emotional, spiritual, intellectual and social spheres needed to optimize health and enhanced fitness.